

CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

GUIDE TO STANDARDS AND IMPLEMENTATION

1997

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CURRGDHT

upd. 1999

Alberta
EDUCATION
Curriculum Standards Branch



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This document was prepared for:

<i>Administrators</i>	✓
<i>Counsellors</i>	✓
<i>General Audience</i>	
<i>Parents</i>	
<i>Students</i>	
<i>Teachers</i>	✓



Program/Level: Career and Technology Studies/Secondary

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This document supersedes all previous versions of the *Career & Technology Studies Guide to Standards and Implementation*.

This publication is a support document. The advice and direction offered is suggestive except where it duplicates the Program of Studies. The Program of Studies—a prescriptive description of the expectations of student learning, focusing on what students are expected to know and be able to do—is issued under the authority of the Minister of Education pursuant to section 25(1) of the *School Act*, Statutes of Alberta, 1988, Chapter S-3.1 as amended, and is required for implementation. **Within this document, the Program of Studies is shaded so that the reader may readily identify all prescriptive statements or segments.**

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CAREER AND TECHNOLOGY STUDIES

A. PROGRAM RATIONALE AND PHILOSOPHY

Through Career and Technology Studies (CTS), secondary education in Alberta is responding to the many challenges of modern society, helping young people develop daily living skills and nurturing a flexible, well-qualified work force.

In Canada's information society, characterized by rapid change in the social and economic environment, students must be confident in their ability to respond to change and successfully meet the challenges they face in their own personal and work lives. In particular, they make decisions about what they will do when they finish high school. Many students will enter the work force, others will continue their education. All students face the challenges of growing independence and responsibility, and of entering post-secondary programs and/or the highly competitive workplace.

Secondary schools also face challenges. They must deliver, on a consistent basis, high quality, cost-effective programs that students, parents and the community find credible and relevant.

CTS helps schools and students meet these challenges. Schools can respond more efficiently and effectively to student and community needs and expectations by taking advantage of the opportunities in the CTS curriculum to design courses and access school, community and distance learning resources. Students can develop the confidence they need as they move into adult roles by assuming increased responsibility for their

learning; cultivating their individual talents, interests and abilities; and by defining and acting on their goals.

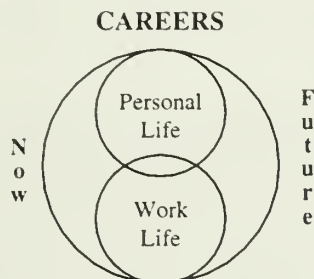
As an important component of education in Alberta secondary schools, CTS promotes student achievement by setting clear expectations and recognizing student success. Students in CTS develop competencies—the knowledge, skills and attitudes they are expected to demonstrate, that is, what they know and what they are able to do.

Acquired competencies can be applied now and in the future as students make a smooth transition into adult roles in the family, community, workplace and/or further education. To facilitate this transition, clearly stated expectations and standards have been defined in cooperation with teachers, business and industry representatives and post-secondary educators.

CTS offers all students important learning opportunities. Regardless of the particular area of study chosen, *students* in CTS *will*:

- develop skills that can be applied in their daily lives, now and in the future
- refine career-planning skills
- develop technology-related skills
- enhance employability skills
- apply and reinforce learnings developed in other subject areas.

In CTS, students build skills they can apply in their everyday lives. For example, in the CTS program, particularly at the introductory levels, students have the opportunity to improve their ability to make sound consumer decisions and to appreciate environmental and safety precautions.

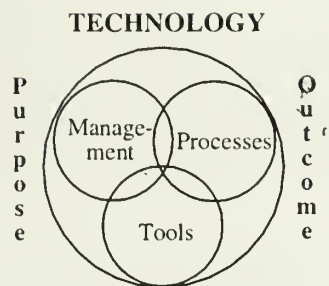


A career encompasses more than activities just related to a person's job or occupation; it involves one's personal life in both local and global contexts; e.g., as a family member, a friend, a community volunteer, a citizen of the world.

The integration of careers throughout the CTS program helps students to make effective career decisions and to target their efforts. CTS students will have the opportunity to expand their knowledge about careers, occupations and job opportunities, as well as the education and/or training requirements involved. Also, students come to recognize the need for lifelong learning.

Students in CTS have the opportunity to use and apply technology and systems effectively and efficiently. This involves:

- a decision regarding which processes and procedures best suit the task at hand
- the appropriate selection and skilled use of the tools and/or resources available
- an assessment of and management of the impact the use of the technology may have on themselves, on others and on the environment.



Integrated throughout CTS are employability skills, those basic competencies that help students develop their personal management and social skills. Personal management skills are improved as students take increased responsibility for their learning, design innovative solutions to problems and challenges, and manage resources effectively and efficiently. Social skills improve through learning experiences that require students to work effectively with others, demonstrate teamwork and leadership, and maintain high standards in safety and accountability.

As well as honing employability skills, CTS reinforces and enhances learnings developed in core and other optional courses. The curriculum emphasizes, as appropriate, the effective application of communication and numeracy skills.

In addition to the common outcomes described above, students focusing on a particular area of study will develop career-specific competencies that support entry into the workplace and/or related post-secondary programs. Career-specific competencies can involve understanding and applying appropriate terminology, processes and technologies related to a specific career, occupation or job.

PROGRAM OUTCOMES

The program outcomes describe the basic competencies integrated throughout the CTS program.

Within an applied context relevant to personal goals, aptitudes and abilities; *the student in CTS will:*

- demonstrate the basic knowledge, skills and attitudes necessary for achievement and fulfillment in personal life
- develop an action plan that relates personal interests, abilities and aptitudes to career opportunities and requirements
- use technology effectively to link and apply appropriate tools, management and processes to produce a desired outcome
- develop basic competencies (employability skills), by:
 - selecting relevant, goal-related activities, ranking them in order of importance, allocating necessary time, and preparing and following schedules (managing learning)
 - linking theory and practice, using resources, tools, technology and processes responsibly and efficiently (managing resources)
 - applying effective and innovative decision-making and problem-solving strategies in the design, production, marketing and consumption of goods and services (problem solving and innovation)
 - demonstrating appropriate written and verbal skills, such as composition, summarization and presentation (communicating effectively)
 - participating as a team member by working cooperatively with others and contributing to the group with ideas, suggestions and effort (working with others)

- maintaining high standards of ethics, diligence, attendance and punctuality, following safe procedures consistently, and recognizing and eliminating potential hazards (demonstrating responsibility).

PROGRAM ORGANIZATION

CURRICULUM STRUCTURE

Career and Technology Studies is organized into **strands** and **courses**.

Strands in CTS define competencies that help students:

- build daily living skills
- investigate career options
- use technology (managing, processes, tools) effectively and efficiently
- prepare for entry into the workplace and/or related post-secondary programs.

In general, strands relate to selected industry sectors offering positive occupational opportunities for students. Some occupational opportunities require further education after high school, and some allow direct entry into the workplace. Industry sectors encompass goods-producing industries, such as agriculture, manufacturing and construction; and service-producing industries, such as business, health, finance and insurance.

Courses are the building blocks for each strand. They define what a student is expected to know and be able to do (exit-level *competencies*). Courses also specify prerequisites. Recommendations for course parameters, such as instructional qualifications, facilities and equipment can be found in the guides to implementation.

The competencies a student must demonstrate to achieve success in a course are defined through *general outcomes*. Senior high school students who can demonstrate the general outcomes defined for a CTS course; i.e., who have the designated competencies, will qualify for 1 credit toward their high school diploma.

Specific outcomes provide a more detailed framework for instruction. Within the context of the general outcomes, the specific outcomes further define the knowledge, skills and attitudes the student should acquire.

The following chart shows the 22 strands that comprise the CTS program and the number of 1-credit courses available in each strand.

Strand	No. of Courses
1. Agriculture	33
2. Career Transitions	31
3. Communication Technology	33
4. Community Health	31
5. Construction Technologies	46
6. Cosmetology Studies	58
7. Design Studies	31
8. Electro-Technologies	37
9. Energy and Mines	26
10. Enterprise and Innovation	8
11. Fabrication Studies	41
12. Fashion Studies	29
13. Financial Management	14
14. Foods	37
15. Forestry	21
16. Information Processing	48
17. Legal Studies	13
18. Logistics	12
19. Management and Marketing	20
20. Mechanics	54
21. Tourism Studies	24
22. Wildlife	17

LEVELS OF ACHIEVEMENT

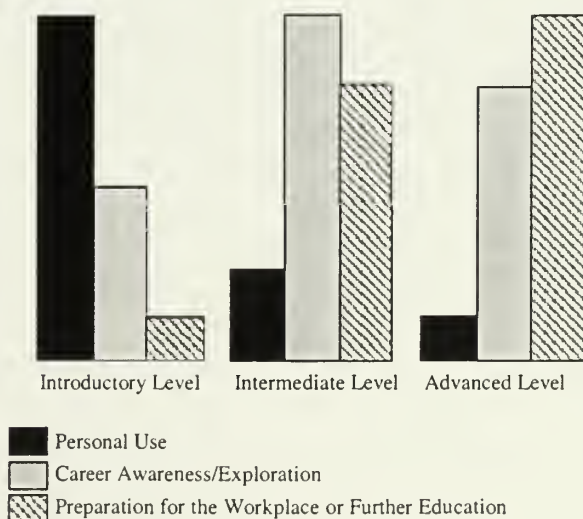
Courses are organized into three levels of achievement: **introductory**, **intermediate** and **advanced**. As students progress through the levels, they will be expected to meet higher standards and demonstrate an increased degree of competence, in both the program outcomes and the general outcomes defined for individual courses.

Introductory level courses help students build daily living skills and form the basis for further learning. Introductory courses are for students who have no previous experience in the strand.

Intermediate level courses build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Advanced level courses refine expertise and help prepare students for entry into the workplace or a related post-secondary program.

The graph below illustrates the relative emphasis on the aspects of career planning at each of the levels.



CURRICULUM AND ASSESSMENT STANDARDS

Curriculum standards in CTS define what students must know and be able to do. Curriculum standards are expressed through the program outcomes for CTS, and through general and specific outcomes defined for individual courses within each strand.

Assessment standards define how student performance is to be judged. In CTS, each assessment standard defines the conditions and criteria to be used for assessing the competencies associated with each general outcome. To receive credit for a course, students must demonstrate competency at the level specified by the conditions and criteria defined for each general outcome.

Students throughout the province receive a fair and reliable assessment as they use the standards to guide their efforts, thus ensuring they participate more effectively and successfully in the learning and assessment process. Standards at advanced levels are, as much as possible, linked to workplace and post-secondary entry-level requirements.

TYPES OF COMPETENCIES

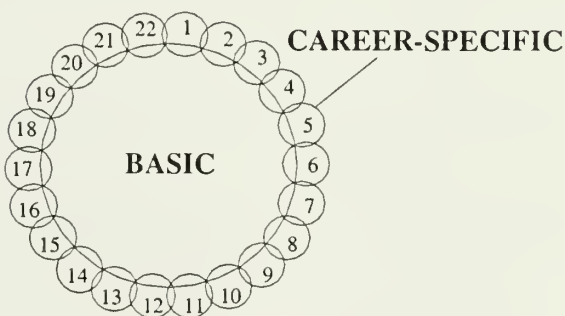
Two types of competencies are defined within the CTS program: basic and career-specific.

Basic competencies are generic to any career area and are developed within each course. Basic competencies include:

- personal management; e.g., managing learning, being innovative, ethics, managing resources
- social; e.g., communication, teamwork, leadership and service, demonstrating responsibility (safety and accountability).

Career-specific competencies relate to a particular strand. These competencies build daily living skills at the introductory levels and support the smooth transition to the workplace and/or post-secondary programs at the intermediate and advanced levels.

The model below shows the relationship of the two types of competencies within the 22 strands of the CTS program.







BASIC COMPETENCIES REFERENCE GUIDE

The chart below outlines basic competencies that students endeavour to develop and enhance in each of the CTS strands and courses. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each course. In general, there is a progression of task complexity and student initiative as outlined in the Developmental Framework*. As students progress through Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages. Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using in reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- maintaining a student portfolio.

Stage 1— The student:	Stage 2— The student:	Stage 3— The student:	Stage 4— The student:
Managing Learning <ul style="list-style-type: none"> <input type="checkbox"/> comes to class prepared for learning <input type="checkbox"/> follows basic instructions, as directed <input type="checkbox"/> acquires specialized knowledge, skills and attitudes <input type="checkbox"/> identifies criteria for evaluating choices and making decisions <input type="checkbox"/> uses a variety of learning strategies 	 <ul style="list-style-type: none"> <input type="checkbox"/> follows instructions, with limited direction <input type="checkbox"/> sets goals and establishes steps to achieve them, with direction <input type="checkbox"/> applies specialized knowledge, skills and attitudes in practical situations <input type="checkbox"/> identifies and applies a range of effective strategies for solving problems and making decisions <input type="checkbox"/> explores and uses a variety of learning strategies, with limited direction 	 <ul style="list-style-type: none"> <input type="checkbox"/> follows detailed instructions on an independent basis <input type="checkbox"/> sets clear goals and establishes steps to achieve them <input type="checkbox"/> transfers and applies specialized knowledge, skills and attitudes in a variety of situations <input type="checkbox"/> uses a range of critical thinking skills to evaluate situations, solve problems and make decisions <input type="checkbox"/> selects and uses effective learning strategies <input type="checkbox"/> cooperates with others in the effective use of learning strategies 	 <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates self-direction in learning, goal setting and goal achievement <input type="checkbox"/> transfers and applies learning in new situations; demonstrates commitment to lifelong learning <input type="checkbox"/> thinks critically and acts logically to evaluate situations, solve problems and make decisions <input type="checkbox"/> provides leadership in the effective use of learning strategies
Managing Resources <ul style="list-style-type: none"> <input type="checkbox"/> adheres to established timelines; uses time/schedules/planners effectively <input type="checkbox"/> uses information (material and human resources), as directed <input type="checkbox"/> uses technology (facilities, equipment, supplies), as directed, to perform a task or provide a service <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials, as directed 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to timelines, with limited direction; uses time/schedules/planners effectively <input type="checkbox"/> accesses and uses a range of relevant information (material and human resources), with limited direction <input type="checkbox"/> uses technology (facilities, equipment, supplies), as appropriate, to perform a task or provide a service, with minimal assistance and supervision <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials, with limited assistance 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to detailed timelines on an independent basis; prioritizes task; uses time/schedules/planners effectively <input type="checkbox"/> accesses a range of information (material and human resources), and recognizes when additional resources are required <input type="checkbox"/> selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials on an independent basis 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to detailed timelines; uses time/schedules/planners effectively; prioritizes tasks on a consistent basis <input type="checkbox"/> uses a wide range of information (material and human resources) in order to support and enhance the basic requirement <input type="checkbox"/> recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies) <input type="checkbox"/> demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation <ul style="list-style-type: none"> <input type="checkbox"/> participates in problem solving as a process <input type="checkbox"/> learns a range of problem-solving skills and approaches <input type="checkbox"/> practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints, by: <ul style="list-style-type: none"> – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action 	<ul style="list-style-type: none"> <input type="checkbox"/> identifies the problem and selects an appropriate problem-solving approach, responding appropriately to specified goals and constraints <input type="checkbox"/> applies problem-solving skills to a directed or a self-directed activity, by: <ul style="list-style-type: none"> – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action 	<ul style="list-style-type: none"> <input type="checkbox"/> thinks critically and acts logically in the context of problem solving <input type="checkbox"/> transfers problem-solving skills to real-life situations, by generating new possibilities <input type="checkbox"/> prepares implementation plans <input type="checkbox"/> recognizes risks 	<ul style="list-style-type: none"> <input type="checkbox"/> identifies and resolves problems efficiently and effectively <input type="checkbox"/> identifies and suggests new ideas to get the job done creatively, by: <ul style="list-style-type: none"> – combining ideas or information in new ways – making connections among seemingly unrelated ideas – seeking out opportunities in an active manner

Stage 1— <i>The student:</i>	Stage 2— <i>The student:</i>	Stage 3— <i>The student:</i>	Stage 4— <i>The student:</i>
Communicating Effectively <ul style="list-style-type: none"> <input type="checkbox"/> uses communication skills; e.g., reading, writing, illustrating, speaking <input type="checkbox"/> uses language in appropriate context <input type="checkbox"/> listens to understand and learn <input type="checkbox"/> demonstrates positive interpersonal skills in selected contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> communicates thoughts, feelings and ideas to justify or challenge a position, using written, oral and/or visual means <input type="checkbox"/> uses technical language appropriately <input type="checkbox"/> listens and responds to understand and learn <input type="checkbox"/> demonstrates positive interpersonal skills in many contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned arguments <input type="checkbox"/> encourages, persuades, convinces or otherwise motivates individuals <input type="checkbox"/> listens and responds to understand, learn and teach <input type="checkbox"/> demonstrates positive interpersonal skills in most contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> negotiates effectively, by working toward an agreement that may involve exchanging specific resources or resolving divergent interests <input type="checkbox"/> negotiates and works toward a consensus <input type="checkbox"/> listens and responds to understand, learn, teach and evaluate <input type="checkbox"/> promotes positive interpersonal skills among others
Working with Others <ul style="list-style-type: none"> <input type="checkbox"/> fulfills responsibility in a group project <input type="checkbox"/> works collaboratively in structured situations with peer members <input type="checkbox"/> acknowledges the opinions and contributions of others in the group 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> cooperates to achieve group results <input type="checkbox"/> maintains a balance between speaking, listening and responding in group discussions <input type="checkbox"/> respects the feelings and views of others 	<ul style="list-style-type: none"> <input type="checkbox"/> seeks a team approach, as appropriate, based on group needs and benefits; e.g., idea potential, variety of strengths, sharing of workload <input type="checkbox"/> works in a team or group: <ul style="list-style-type: none"> – encourages and supports team members – helps others in a positive manner – provides leadership/followership as required – negotiates and works toward consensus as required 	<ul style="list-style-type: none"> <input type="checkbox"/> leads, where appropriate, mobilizing the group for high performance <input type="checkbox"/> understands and works within the context of the group <input type="checkbox"/> prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility <p>Attendance</p> <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates responsibility in attendance, punctuality and task completion <p>Safety</p> <ul style="list-style-type: none"> <input type="checkbox"/> follows personal and environmental health and safety procedures <input type="checkbox"/> identifies immediate hazards and their impact on self, others and the environment <input type="checkbox"/> follows appropriate/emergency response procedures <p>Ethics</p> <ul style="list-style-type: none"> <input type="checkbox"/> makes personal judgements about whether or not certain behaviours/actions are right or wrong 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> recognizes and follows personal and environmental health and safety procedures <input type="checkbox"/> identifies immediate and potential hazards and their impact on self, others and the environment <input type="checkbox"/>  <input type="checkbox"/> assesses how personal judgements affect other peer members and/or family; e.g., home and school 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> establishes and follows personal and environmental health and safety procedures <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/> assesses the implications of personal/group actions within the broader community; e.g., workplace 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> transfers and applies personal and environmental health and safety procedures to a variety of environments and situations <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/> demonstrates accountability for actions taken to address immediate and potential hazards <input type="checkbox"/> analyzes the implications of personal/group actions within the global context <input type="checkbox"/> states and defends a personal code of ethics as required
★ Developmental Framework <ul style="list-style-type: none"> • Simple task • Structured environment • Directed learning 	<ul style="list-style-type: none"> • Task with limited variables • Less structured environment • Limited direction 	<ul style="list-style-type: none"> • Task with multiple variables • Flexible environment • Self-directed learning, seeking assistance as required 	<ul style="list-style-type: none"> • Complex task • Open environment • Self-directed/self-motivated

INFORMATION PROCESSING

B. STRAND RATIONALE AND PHILOSOPHY

Information Processing, a strand in Career and Technology Studies, represents the study of electronic technologies as they apply to personal use and the business environment.

As we move more rapidly into the information age, it is crucial that students are able to use electronic technologies to access and manipulate information in an efficient manner. Accurate, timely information is the basis for sound decision making and effective communication.

As students build confidence in their understanding of the various information processing tools and procedures, they will be able to transfer their knowledge and skill to a wide range of contexts. They will also be better able to adapt to the continual changes caused by the evolving technologies.

To understand the shift from the *industrial society* toward the *information age*, it is important that a student understands the significance of the current technological development, of how technology affects an individual's daily life and of the impact that technology has on the world of work. Within this perspective, Information Processing provides for the development of:

- a meaningful study of technological trends
- an understanding of the systems that relate in whole or in part to the management of information

- an understanding of the ethical and societal issues concerning technological development and its impact on society
- technological skills and knowledge designed for personal use
- technological skills and knowledge that transfer to other curriculum areas
- technological skills and knowledge required for the world of work.

Students will learn to input, process and output information in the following areas:

- systems operations
- text/data input
- productivity software
- applied processing
- dynamic environment
- programming (procedure-oriented and object-oriented).

STRAND ORGANIZATION

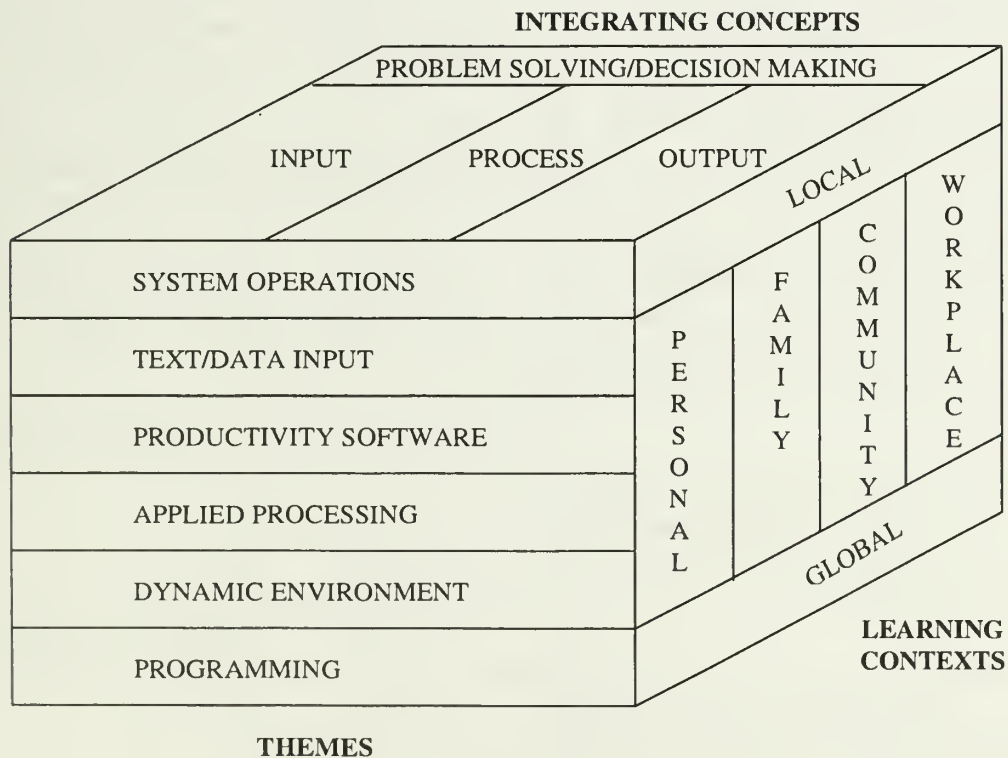
The developmental model indicates the relationship of what the students learn (as described in the themes), how these learnings are emphasized within the modules (as described in the integrating concepts) and how students will apply these learnings (as described in the learning contexts).

LEVELS

Students working on modules at the introductory level develop basic techniques and skills which, while primarily for personal use, also form the foundation for the development of more professional applications.

In the intermediate level modules, students are expected to work more independently and expand and refine basic skills in a wide range of applications.

At the advanced level, students use initiative to efficiently integrate applications and processes to produce high quality work to workplace standards.



THEMES

The themes provide learning experiences that link knowledge, skills and attitudes with real-life situations. Modules are organized into six themes:

- system operations
- text/data input
- productivity software
- applied processing
- dynamic environment
- programming.

The modules in the System Operations theme help students efficiently use and assess computer hardware and related software and peripherals, and understand and apply various communication protocols.

In the Text/Data Input themes students develop efficient keyboarding competencies for both personal use and professional skill levels.

In Productivity Software modules students learn the commands and processes of the key productivity software packages used in personal and professional applications, including word processing, spreadsheet, database, graphics and electronic/desktop publishing. Students expand their ability use these software applications in other CTS strands such as Communication Technology, or in other courses such as English, mathematics, etc.

The Applied Processing theme is designed to increase students' level of productivity as they produce a variety of documents that integrate text, data and graphics applications.

In the Dynamic Environments theme students work with software that links various media and processes in new and unique ways to manage and communicate information.

The Programming theme provides an opportunity for students to develop high-level, structured programming skills, using either procedure-oriented or object-oriented processes.

INTEGRATING CONCEPTS

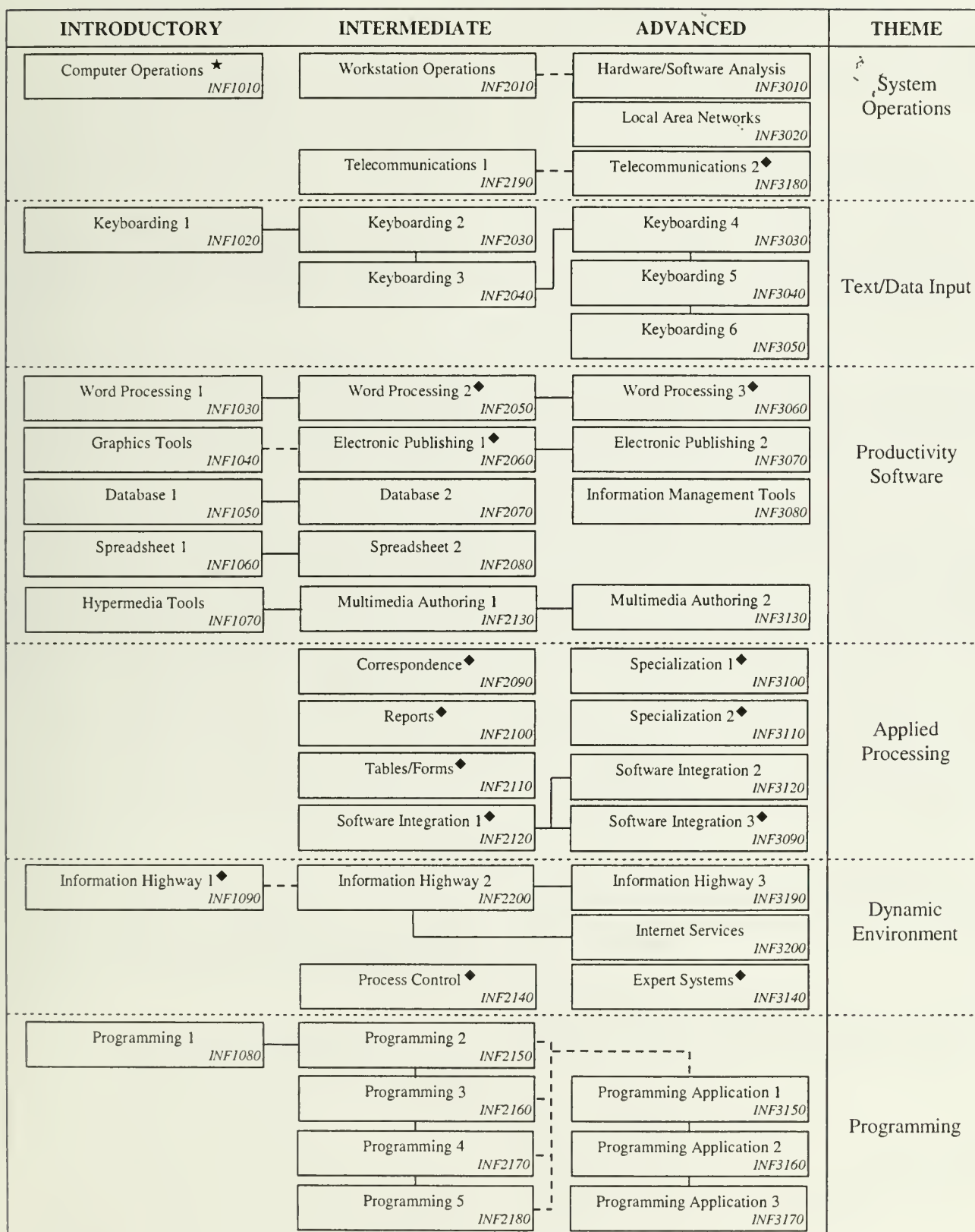
Integrated within each of the Information Processing modules is the expectation that students will identify and resolve problems efficiently by using effective decision-making skills. Students apply these problem-solving/decision-making skills as they determine the most effective and efficient processes to use to input, process and output information.

LEARNING CONTEXTS

Learning contexts help students relate their learning to real-life experiences and challenges. In modules at the introductory level, these challenges are most frequently in a context typical in daily living—within the home, school or community. As the student progresses through the intermediate and advanced levels, the challenges and related expectations for performance involve contexts that relate to the workplace.

With the ever-increasing power of information technologies, all of these applications can be applied both at the local and global level. The competencies students develop in Information Processing will also support students as they continue their education in post-secondary or other further education opportunities.

SCOPE AND SEQUENCE



— Prerequisite

- - - Recommended sequence

★ Course provides a strong foundation for further learning in this strand.

♦ Refer to specific courses for additional prerequisites.

COURSE DESCRIPTIONS

Course INF1010: Computer Operations

Students develop personal use skills basic to all courses in the Information Processing strand in the following applications: file management, basic hardware and software operations, text entry and workstation routines.

Course INF1020: Keyboarding 1

Students develop accurate touch keystroking of text and data appropriate to personal use and the application of efficient workstation procedures.

Course INF1030: Word Processing 1

Students develop skill in using basic commands and functions in word processing software, including document editing, and the formatting and printing of reports, correspondence and tables suitable for personal use applications.

Course INF1040: Graphics Tools

Students learn the basic commands and functions of computer graphics software, including bitmapped graphics (paint program) and vector graphics (draw program). Students also develop basic skills in manipulating existing graphics, as well as in producing their own graphics.

Course INF1050: Database 1

Students are introduced to the basic commands and functions of database software, and demonstrate how this software can be used as a personal tool in data and information management.

Course INF1060: Spreadsheet 1

Students have an opportunity to use basic functions and commands in spreadsheet software for general data manipulation and personal record keeping.

Course INF1070: Hypermedia Tools

Students develop basic skills with tools used for computerized presentations involving text, data, graphics, sound and animation.

Course INF1080: Programming 1

Students are introduced to computer programming languages and a structured programming environment, and they construct algorithms and code instructions to solve identified problems.

Course INF1090: Information Highway 1

Students develop personal use Internet skills for accessing and communicating data and information, with particular emphasis on the world wide web and email.

Course INF2010: Workstation Operations

Students learn computer workstation operations, including computer architecture, peripherals, configurations, operating system environments and platforms, utility software, diagnostic and protection software, hard drive file updating and maintenance, support resource application and troubleshooting activities.

Course INF2030: Keyboarding 2

Students enhance their personal use keyboarding competencies by increasing the rate of accurate touch keystroking of the alphabetic, numeric and selected punctuation keys.

Course INF2040: Keyboarding 3

Students enhance their keyboarding competencies, by increasing the rate of accurate touch keystroking of alphabetic, numeric and all punctuation keys to support personal use and limited, entry-level, workplace opportunities.

Course INF2050: Word Processing 2

Students expand their skills in using word processing software commands and functions to produce mailable reports and correspondence, including letters, memorandums and tables, all from rough draft copy.

Course INF2060: Electronic Publishing 1

Students develop skill, using electronic/desktop publishing software to create a variety of camera-ready documents.

Course INF2070: Database 2

Students use all the commands and functions of electronic database software that support effective and efficient database applications.

Course INF2080: Spreadsheet 2

Students demonstrate advanced level spreadsheet commands and functions to calculate and manipulate data and to prepare appropriate reports and printouts in text and graphic format.

Course INF2090: Correspondence

Students expand their rate of document production as they prepare various forms of correspondence in mailable form, using word processing software.

Course INF2100: Reports

Students expand their rate of production as they prepare various reports and manuscripts in mailable form.

Course INF2110: Tables/Forms

Students expand their rate of document production as they prepare various tables/forms in mailable form.

Course INF2120: Software Integration 1

Students develop document production skills requiring the integration of data, text and graphics.

Course INF2130: Multimedia Authoring 1

Students are introduced to multimedia software and provided with an opportunity to develop basic authoring competence, by accessing and integrating software resident text, video and audio clips.

Course INF2140: Process Control

Students develop skills in robotics/simulation software control by creating, modifying and using programs that incorporate computer-controlled movements and events in robotics/simulation activities and applications.

Course INF2150: Programming 2

Students increase their programming skills, by designing and generating programming code to handle decision making and repetitive processes.

Course INF2160: Programming 3

Students increase their programming skills, by using subprogram structures.

Course INF2170: Programming 4

Students increase their programming skills, by developing and using derived data types.

Course INF2180: Programming 5

Students increase their programming skills, by developing and using recursive, sorting and merging algorithms.

Course INF2190 Telecommunications 1

Students learn how to select and use various wired and wireless telecommunication systems. By using the Internet, they investigate how communication principles, bandwidth, telecommunication infrastructure and wave spectrum affects telecommunication systems.

Course INF2200: Information Highway 2

Students learn how to produce a web page for the Internet.

Course INF3010: Hardware/Software Analysis

Students analyze, compare and evaluate hardware/software based on user requirements.

Course INF3020: Local Area Networks

Students learn about local area network (LAN) computer systems, including hardware and peripheral configurations, interface protocols and data transmission characteristics.

Course INF3030: Keyboarding 4

Students develop their text and data keyboarding skills to entry-level occupational expectations.

Course INF3040: Keyboarding 5

Students increase their occupational-level keyboarding competence of text, data and function/service keys, using straight copy and edited material.

Course INF3050: Keyboarding 6

Students enhance their occupational-level keyboarding competence of all keystroke functions, using unedited, edited and straight copy material.

Course INF3060: Word Processing 3

Students develop occupational-level competence in the use of word processing software commands and functions to produce mailable reports, correspondence and tables, including the importing and merging of text, data and graphics.

Course INF3070: Electronic Publishing 2

Students use the functions and commands of electronic/desktop publishing software as they integrate text composing, editing, typesetting, graphics generation and page layout functions to create customized, professional, quality documents.

Course INF3080: Information Management Tools

Students develop competence in using information management systems software, such as project management, schedules and planners for either personal or workplace applications.

Course INF3090: Software Integration 3

Students develop high production rates as they process documents from unedited and unformatted copy, using numerous functions/commands to create, revise, format and print a wide range of mailable copy.

Course INF3100: Specialization 1

Students specialize in document preparation, terminology application and associated office routine expectations in a specific focus area, such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

Course INF3110: Specialization 2

Students develop workplace competence in a specific focus area, such as medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment, by creating and completing appropriate documents that employ specialized communication skills and conform to workplace expectations and time constraints.

Course INF3120: Software Integration 2

Students expand their document production skills to workplace standards. Documents could require the importing and integration of word processing, spreadsheet, graphics and database files.

Course INF3130: Multimedia Authoring 2

Students learn to use a multimedia file or multimedia authoring software based on digitized input of text, video and audio clips.

Course INF3140: Expert Systems

Students acquire knowledge of expert systems, such as artificial intelligence and virtual reality. They gain competence, by developing or modifying programs that incorporate computer-controlled environments and multimedia interactive activities and applications.

Course INF3150: Programming Application 1

Students create programs that use external files.

Course INF3160: Programming Application 2

Students create a program, using a second programming language.

Course INF3170: Programming Application 3

Students enhance a program, using a second programming language.

Course INF3180: Telecommunications 2

Students demonstrate knowledge of telecommunication systems by designing a new system. They use the Internet in researching and developing their design and for comparing and contrasting various telecommunication initiatives. Students analyze the effect this is having on the individual and society.

Course INF3190: Information Highway 3

Students develop and maintain an Internet/intranet web site that makes use of advanced features.

Course INF3200: Internet Services

Students expand their skills from Information Highway 2, by learning how to operate, maintain and build an Internet/intranet site that may include computer bulletin boards, forums, electronic mail, Internet list servers, and/or moderated newsgroups. Proper use of hardware, software and liaison with users and clients is emphasized.

SECTION C: PLANNING FOR INSTRUCTION

CTS provides increased opportunity for junior and senior high schools to design courses based on the needs and interests of their students and the circumstances within the school and community. Some strands may be appropriately introduced at the junior high school level. Other strands are more appropriately introduced at the senior high school level or to Grade 9 students. Refer to this section for recommendations regarding the Legal Studies strand.

PLANNING FOR CTS

Defining Courses

Schools determine which strands and courses will be offered in a particular school, and will combine 1-credit CTS courses into multiple-credit CTS offerings.

Each 1-credit course was designed for approximately 25 hours of instruction. However, this time frame is only a guideline to facilitate planning. The CTS curricula are competency based, and the student may take more or less time to gain the designated competencies within each course.

A multiple-credit CTS offering will usually consist of 1-credit courses primarily from the same strand but, where appropriate, may include courses from other CTS strands. Refer to the *Guide to Education: ECS to Grade 12* (Appendix 1) for more information on course names and course codes.

Course selection and sequencing should consider:

- prerequisite(s)
- supporting course(s) (other CTS courses that may enhance the learning opportunity if offered with the course)
- course parameters
 - instructional qualifications, if specialized
 - equipment and facility requirements, if specialized.

The course parameters are defined in Sections D, E and F of this Guide.

Degree of Flexibility

The CTS program, while designed using the modular structure to facilitate flexible timetabling and instructional delivery, does not mandate the degree of flexibility a school or teacher will offer. The teacher and school will determine the degree of flexibility available to the student. Within the instructional plan established by the school, the student may:

- be given the opportunity to progress at a rate that is personally challenging
- have increased opportunity to select the courses that develop competencies he or she finds most relevant.

Integrating Basic Competencies

The basic competencies relate to managing learning and resources, problem solving and innovation, communicating effectively, working with others and demonstrating responsibility are developed throughout the CTS program, and within each 1-credit course.

Assessment of student achievement on the basic competencies is integrated throughout the other general outcomes. Refer to Section G (Assessment Tools) of this Guide for the description of student behaviours expected at each of the four developmental stages defined for the basic competencies.

Assessment of basic competencies could include input and reflection involving the student, teacher(s), peers and others. Description of the observed behaviour could be provided through a competency profile for the course. Positive, ongoing interaction between the student and teacher will support motivation for student growth and improvement.

Assessing Student Achievement

Assessing student achievement is a process of gathering information by way of observations of process, product and student interaction.

Where appropriate, assessment tools have been defined to assist the teacher and student in the assessment. Refer to Section G (Assessment Tools) of this Guide for copies of the various tools (worksheets, checklists, sample questions, etc.).

A suggested emphasis for each general outcome has also been established. The suggested emphasis provides a guideline to help teachers determine time allocation and/or the appropriate emphasis for each general outcome and the student grade.

Recognizing Student Achievement

At the high school level, successful demonstration of the exit-level competencies in a course qualifies the student for one credit. Refer to Section A of this Guide for more detailed information about how curriculum and assessment standards are defined in CTS. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* for more information on how student achievement can be recognized and reported at the school and provincial levels.

Portfolios

When planning for instruction and assessment, consider a portfolio as an excellent tool to provide evidence of a student's effort, progress and achievement. Portfolios will aid students in identifying skills and interest. They also provide the receiving teacher, employer and/or post-secondary institution proof of a student's accomplishments. The make-up and evaluation of the portfolio should be a collaborative agreement between the student and teacher.

Resources

A comprehensive resource base, including print, software and audio-visual, has been identified to support CTS strands. It is intended that these resources form the basis of a resource centre, encouraging teachers and students to access a wide selection of resources and other information sources throughout the learning process. Unless otherwise noted, these resources are considered to be suitable for both junior and senior high school students.

Refer to Section I (Learning Resource Guide) to obtain directions for accessing up-to-date information about learning resources that have been identified to support the delivery of CTS courses in this strand.

Sample Student Learning Guides

In addition to the resources, Sample Student Learning Guides are available (refer to Section J of this Guide). These samples, designed for individual student or small group use, provide an instructional plan for selected courses and include the following components:

- Why take this course?
- What are the entry-level competencies?
- What are the exit-level competencies?
- What resources may be accessed?
- What assignments/activities must be completed?
- What are the timelines?
- How will the final mark be calculated?

Sample Student Learning Guides have been developed for the following courses in Information Processing:

- INF1020 Keyboarding I
- INF1030 Word Processing I.

PLANNING FOR INFORMATION PROCESSING

The following suggestions are provided to assist teachers, schools and school system administrators as they plan to deliver courses in the Information Processing strand.

Selecting Courses

The scope and sequence chart in Section B provides an overview of the Information Processing courses, indicating prerequisites and theme areas. Brief descriptions of each of the courses follow the scope and sequence chart in Section B.

Information Processing in Junior High

The introductory level courses may be offered at junior high. Because many students entering junior high school may be familiar with computers, it is important to determine the level of competence students have in relation to the competencies defined for the courses.

The number of courses offered will vary according to the time available throughout Grades 7, 8 and 9:

Time Available	Courses
25 hours	Computer Operations
50 hours	Computer Operations Keyboarding 1
75–100 hours	add one of the following: Word Processing 1 Graphics Tools Database 1 Spreadsheet 1 Hypermedia Tools Programming 1

Where appropriate, junior high school students may also take intermediate level courses, particularly in the Text/Data Input and Productivity Software themes.

Courses may be combined into courses and offered within a school year or over a span of a few years.

Information Processing in Senior High

Following are a few examples of course groupings into sample courses:

5 credits (no previous experience)	Computer Operations Keyboarding 1 Word Processing 1 Database 1 Spreadsheet 1
3 credits (strong background from junior high school or through personal experience)	Keyboarding 1 Database 1 Spreadsheet 1
5–15 credits (foundation for entry into workplace as computer technician)	Computer Operations Keyboarding 1 Word Processing 1 Database 1 Spreadsheet 1 and courses selected from System Operations theme and Programming theme
5–15 credits (foundation for entry into workplace into administrative support positions)	Keyboarding 2 Word Processing 2 Database 2 Spreadsheet 2 Electronic Publishing 1 and courses selected from the Applied Processing theme and Productivity Software theme

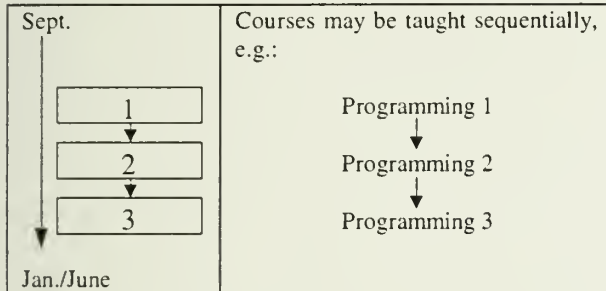
Courses could also be clustered into multiple-credit offerings that emphasize a particular theme.

Organizing for Learning

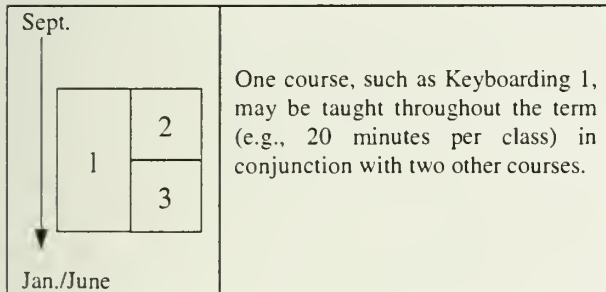
Before selecting courses, teachers should check the course parameters outlined in each course (see Sections D, E and F of this Guide).

Individual 1-credit courses can be delivered sequentially, concurrently or combined. For example, although the courses in the Text/Data Input theme and the Programming theme are sequential, they can be combined with courses from the System Operations theme, the Productivity Software theme, or the Applied Processing theme; e.g.:

Scenario A

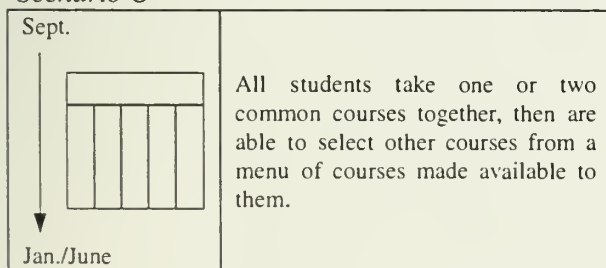


Scenario B

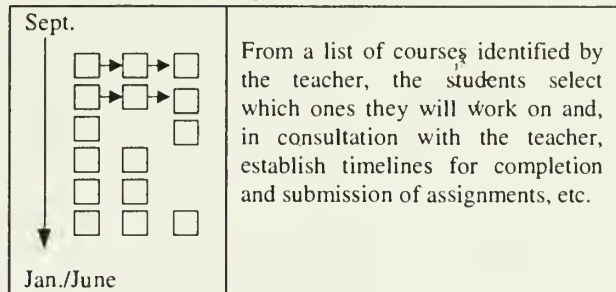


Teachers can also allow students to progress at a rate that is personally challenging; e.g.:

Scenario C



Scenario D



Recurring Concept—Workstation Management

Each course in Information Processing requires students to consistently apply appropriate workstation routines. This requires students to demonstrate responsibility and professionalism throughout the instruction period as they:

- manage and use the workstation and related resources
- make efficient and effective use of their own and others' time
- learn in as independent a manner as possible
- use related terminology appropriately, both verbally and in print.

An emphasis of 10 percent has been allocated in each course for workstation management.

Identifying Linkages

Section H of this Guide describes some of the linkages that are possible between the Information Processing strand and other CTS strands.

Project and practicum courses are **not** designed to be offered as distinct courses and should **not** be used to extend Work Experience 15, 25 and 35 courses.

Improving Smooth Transition to the Workplace and/or Related Post-secondary Programs

Refer to Section H of this Guide for potential transitions students may make into the workplace and/or related post-secondary programs or other avenues for further learning.

MODULE CURRICULUM AND ASSESSMENT STANDARDS:

INTRODUCTORY LEVEL

The following pages define the curriculum and assessment standards for the introductory level of Information Processing.

Introductory level modules help students build daily living skills and form the basis for further learning. Introductory modules are developed for students who have no previous experience in the strand.

Module learner expectations define the competencies a student must demonstrate to achieve success in a module. Assessment standards define the conditions and criteria to be used for assessing the competencies defined in the module learner expectations.

Specific learner expectations provide a detailed framework for instruction to help students build the competencies defined in the module learner expectations. Additional information and suggestions for instruction are provided in the Notes column; teachers may wish to use this space to record their ideas for instruction or student projects.

Module INF1010:	Computer Operations	D.3
Module INF1020:	Keyboarding 1	D.7
Module INF1030:	Word Processing 1	D.11
Module INF1040:	Graphics Tools	D.15
Module INF1050:	Database 1	D.19
Module INF1060:	Spreadsheet 1	D.25
Module INF1070:	Hypermedia Tools	D.31
Module INF1080:	Programming 1	D.35
Module INF1090:	Information Highway 1	D.41

COURSE INF1010: COMPUTER OPERATIONS

Level: Introductory

Theme: Systems Operations

Prerequisite: None

Description: Students develop personal use skills basic to all courses in the Information Processing strand in the following applications: file management, basic hardware and software operations, text entry and workstation routines.

Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate basic file management skills	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">demonstrating effective and efficient file management techniques. <i>Assessment Tool</i> <i>Assessment Checklist A: File Management Procedures (INF1010-1)</i> <i>Standard</i> <u>All</u> procedures must be demonstrated	10
<ul style="list-style-type: none">enter text and data, using the proper touch keyboarding technique	<ul style="list-style-type: none">demonstrating touch keyboarding technique. <i>Assessment Tool</i> <i>Assessment Checklist B: Text-Data Entry (INF1010-1)</i> <i>Standard</i> <u>All</u> procedures must be demonstrated	50
<ul style="list-style-type: none">identify components of a computer workstation and basic functions of a computer	<ul style="list-style-type: none">identifying and explaining use of computer workstation components. <i>Assessment Tool</i> <i>Assessment Checklist C: Computer Workstation Components (INF1010-1)</i> <i>Standard</i> <u>All</u> procedures must be demonstrated	10

COURSE INF1010: COMPUTER OPERATIONS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> describe one or more recent initiatives or issues in technological development 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> preparing a report (oral, print or multimedia). The report will provide a clear and concise description of: <ul style="list-style-type: none"> – current or emerging technological initiative or issue – actual or potential impact on individual and society – a list of sources of information. <p><i>Assessment Tool</i> <i>Assessment Guide: Presentations and Reports (INF1010–2)</i></p> <p><i>Standard</i> <i>Rating of 1 on each component</i></p>	20
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF1010: COMPUTER OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
File Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use appropriate commands to boot/access computer system(s): <ul style="list-style-type: none"> – standalone – network • demonstrate ability to: <ul style="list-style-type: none"> – create, name, save and close files – retrieve and open files – print files. 	
Text/Data Entry	<ul style="list-style-type: none"> • demonstrate “touch keyboarding” skills with alphabetic and basic punctuation keys using proper techniques characterized by: <ul style="list-style-type: none"> – correct fingering – appropriate body position – acceptable eye focus • proofread and edit text or data as appropriate to ensure error-free documents, including: <ul style="list-style-type: none"> – manually proofread copy and compare copy with original text on: <ul style="list-style-type: none"> • screen • hard copy – use software editing functions (spell check, grammar checks). 	The emphasis is on developing touch stroking, using correct fingering. Keyboarding speed is developed in the Keyboarding modules.
Workstation Components and Computer Functions	<ul style="list-style-type: none"> • identify and describe basic computer functions, related to the workstation hardware and software that is in use, including: <ul style="list-style-type: none"> – hardware architecture, configurations and peripherals: <ul style="list-style-type: none"> • input (keyboard, scanners, voice, etc.) • processing • storage • output (screen, printer) • telecommunications – types of software: <ul style="list-style-type: none"> • system • application • utility – key procedures: <ul style="list-style-type: none"> • operating • backup • preventive/emergency • use related terminology appropriately. 	

MODULE INF1010: COMPUTER OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Initiatives and Issues in Technology	<p><i>The student should:</i></p> <ul style="list-style-type: none"> research one or more recent initiatives or issues that relate to computer technology prepare a report (verbal, print or multimedia) that: <ul style="list-style-type: none"> provides a clear and concise description of the initiative or issue describes actual or potential impact on the individual and/or society in lists sources of information. 	<p>Topics could relate to initiatives or issues in:</p> <ul style="list-style-type: none"> personal life professional life privacy security ethical computer infections (viruses, worms) future trends.
Workstation Management	<ul style="list-style-type: none"> apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> good health and safety (posture, positioning of hardware and furniture) security for hardware, software, supplies and personal work demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> start-up procedures organization of work area closing procedures apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> plan activities organize data, information, resources consider alternatives evaluate activities/results use related terminology to describe basic processes, procedures and tools. 	

COURSE INF1020: KEYBOARDING 1**Level:** Introductory**Theme:** Text/Data Input**Prerequisite:** None**Description:** Students develop accurate touch keystroking of text and data appropriate to personal use and the application of efficient workstation procedures.**Parameters:** Computer workstation, disk, word processing software, support resources.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate keyboarding competence:<ul style="list-style-type: none">text entry at 20 words per minute (wpm)numeric entry at 80 keystrokes per minute (kpm)technique	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">three timed writings, each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding :<ul style="list-style-type: none">on alphabetic keys<ul style="list-style-type: none">one-minute durationmaximum one uncorrected errorSI ≤ 1.2minimum keystroke rate: 20 words per minuteon numeric keypad:<ul style="list-style-type: none">one-minute durationmaximum one uncorrected errorminimum keystroke rate 80 numeric keystrokes per minute on 1 to 3 digit numbers. <i>Assessment Tool</i> <i>Reference Chart: Keyboarding and Numberpad Rates (INFKEYNB)</i> <ul style="list-style-type: none">observations over the last quarter of the learning period, during timing and drill work. <i>Assessment Tool</i> <i>Assessment Checklist: Text–Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> 3 – Eye Focus 2 – Keystroking 1 – Service Keys 2 – Body Position	<div>30</div> <div>10</div> <div>40</div>

COURSE INF1020: KEYBOARDING 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>2 – File Management</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p>	20
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Outcomes	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> – alphabetic keys – punctuation keys (.,:;?) – service keys (enter, shift, delete, backspace, tab) • use function and cursor movement keys efficiently • demonstrate correct keystroking technique <ul style="list-style-type: none"> – enter text using designated fingers – maintain home-row position – demonstrate correct posture (hand, arm, body) • demonstrate touch entry of numbers on number pad using correct fingering 	<p>Technique is the major focus emphasizing touch development on easy material.</p> <p>Develop speed and accuracy at the word and phrase level using short, repetitive timings (12 seconds to one minute) with straight copy text of varying SI (1.0–1.3).</p> <p>Introduce only the word processing and computer commands that are required as an instructional tool for developing keyboarding skill.</p>

MODULE INF1020: KEYBOARDING 1 (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• proofread and edit text while on screen to ensure text is without error• analyze errors in keystroking and initiate remediation as appropriate for:<ul style="list-style-type: none">– spelling, shifting, punctuation and spacing errors– transposed, repeated, omitted letters.	It is recommended that timings be given from previously unseen material that students have not been allowed to practice on.
Data Entry	<ul style="list-style-type: none">• demonstrate rapid, accurate data entry on keyboard number pad:<ul style="list-style-type: none">– using designated fingers– maintaining anchor position.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF1030: WORD PROCESSING 1

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students develop skill in using basic commands and functions in word processing software, including document editing, and the formatting and printing of reports, correspondence and tables suitable for personal use applications.

Parameters: Computer workstation, disk, word processing software, support resources.

Supporting Course: INF1020 Keyboarding 1

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate correct use of software functions, by producing mailable, properly formatted: <ul style="list-style-type: none"> – paginated reports with headings and references – letters with basic components – two-column tables with main headings and subheadings 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> producing mailable documents, based on formatted and unformatted sources, focusing on the use of basic software functions for personal use applications including a collection of: <ul style="list-style-type: none"> – reports, including applications such as essays, poems, research reports, journal responses, recipes, notices and posters – one-page letters, including applications such as personal and personal business letters – tables, including applications such as calendars, lists, daybooks, agendas and display documents. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i> <i>Standard</i> <i>Rating of 1 in the production of mailable documents (no errors in text and well formatted)</i></p>	<p>30</p> <p>30</p> <p>30</p>

COURSE INF1030: WORD PROCESSING 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>2 – File Management</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe key features of the word processing software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure • use help functions and references as appropriate • demonstrate appropriate key commands to: <ul style="list-style-type: none"> – open/create/update files – name files – close files 	<p>Integrate the learning of software functions and the production of documents with other subject areas such as Language Arts /English, Social Studies, Science.</p>

MODULE INF1030: WORD PROCESSING 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> format text <ul style="list-style-type: none"> rulers/margins line spacing text alignment (left, right, centre, full justified) tabs/indents tables borders/shading text styles bulleted and numbered lists font types/sizes footers/headers page numbering page breaks (hard, widow/orphan) graphics print/preview in alternate formats) file, edit, proofread text <ul style="list-style-type: none"> move (cut, copy and paste) spell and/or grammar check thesaurus search and replace insert/delete text move through document(s) efficiently by using appropriate cursor movement tools/commands. 	Arrows, select, undo, go to.
Document Production	<ul style="list-style-type: none"> demonstrate appropriate key commands to produce the following documents in mailable form: <ul style="list-style-type: none"> reports such as research papers, essays, position papers, response journals, poems, recipes: <ul style="list-style-type: none"> headings/subheading references (footnotes, end notes, bibliography) headers/footers title page personal and business correspondence such as letters to family and friends, customer complaint letter, letters of applications, letter to teacher, etc. 	<p>Mailable form: error-free text and well-formatted.</p> <p>APA and MLA are the two most common report styles—articulate with English/LA teachers and use the same style.</p> <p>Full block style is the easiest style to present at this level.</p>

MODULE INF1030: WORD PROCESSING 1 (continued)

Concept	Specific Learner Expectations	Notes
Document Production (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • letter parts (date, inside address, salutations, complimentary closing, name/title, references) • letter styles – tables (single/multicolumn) such as calendars, announcements, agendas, programs and other types of display typing: <ul style="list-style-type: none"> • headings • borders • rulers/tabs. 	Use software table functions if available.
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF1040: GRAPHICS TOOLS

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students learn the basic commands and functions of computer graphics software, including bitmapped graphics (paint program) and vector graphics (draw program). Students also develop basic skills in manipulating existing graphics, as well as in producing their own graphics.

Parameters: Computer workstation, disk, a selection of graphics software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate the basic elements and principles of design, by using computer software graphics tools to:<ul style="list-style-type: none">– duplicate graphics designs	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• reproduction of documents using paint/draw software programs consisting of:<ul style="list-style-type: none">– text– graphics (paint, draw and/or imported)– use of design principles. <i>Assessment Tool</i> <i>Assessment Checklist: Electronic Publishing Document Production (INFEPDOC)</i> <i>Standard</i> <i>Rating of 1 in the reproduction of well-designed graphic layouts</i>	30
<ul style="list-style-type: none">– create graphics layouts	<ul style="list-style-type: none">• creation of original documents using paint/draw software programs consisting of:<ul style="list-style-type: none">– text– graphics (paint, draw and/or imported)– use of design principles. <i>Assessment Tool</i> <i>Assessment Checklist: Electronic Publishing Document Production (INFEPDOC)</i> <i>Standard</i> <i>Rating of 1 in the production of well-designed graphic layouts</i>	30

COURSE INF1040: GRAPHICS TOOLS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate use of software functions 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> using the appropriate commands, functions and graphic tools including: <ul style="list-style-type: none"> file functions—create/save/load files editing functions (cut/copy/move/paste/delete) import graphic (clip art and/or scan) text tools including style palette paint tool (colour, fill, texture) draw tools (line, rectangle, oval, cropping) output functions (preview and print). <p><i>Assessment Tool</i> <i>Assessment Checklist: Electronic Publishing Software Functions (INFEPSF)</i></p> <p><i>Standard</i> <i>Rating of 1 in the demonstration of appropriate software functions</i></p>	30
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 – Workstation Use 2 – File Management 1 – Time Management/Organization 2 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF1040: GRAPHICS TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe key features of the graphic software packages available: <ul style="list-style-type: none"> capabilities system requirements platform options command structure use help functions and references as appropriate demonstrate use of appropriate commands, functions and tools, such as: <ul style="list-style-type: none"> copy, paste, cut ovals, rectangles, line and polygons marquee, lasso eraser fills line options; e.g., arrows, patterns inserting (placing) resizing repositioning rulers column guides alignment letter spacing leading kerning typefaces (font, style) indent tabs cropping create/load/merge/import/scan graphic elements/objects/files: <ul style="list-style-type: none"> presentation graphics (charting/diagramming/drawing) paint resident functions (clip art) demonstrate use of tools such as: <ul style="list-style-type: none"> pixel bit-mapped object-oriented images line/geometric object-oriented images using vector graphics demonstrate use of computer-aided design, if available: <ul style="list-style-type: none"> create computer graphics for design, drafting, documentation purposes demonstrate use of screen capture/graphics conversion: <ul style="list-style-type: none"> integrate all forms of graphic elements including clip art design/merge/format/edit page (text/data/graphics). 	<p>Pixel and vector graphics are two basic software approaches to the production of images and range from free drawing screen activities to computer generated/controlled graphic designed elements. Graphics software includes toolboxes and palettes, presentations, desktop publishing, artistic creations, space exploration, weather forecasting, computer animation and computer-aided design.</p>

MODULE INF1040: GRAPHICS TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> practise reproducing a variety of documents from a variety of sources using paint/draw software apply basic design elements and principles when creating documents use three-dimensional effects to create depth in documents design and create various documents using paint/draw programs use clip art to enhance document production create own graphics using available paint and draw tools to enhance document preview and print documents. 	<p>For example: line, shape, texture, colour, balance, proportion, contrast, harmony, unity.</p> <p>For example: use of overlapping, perspective, light and dark images, small and large images.</p> <p>For example: letterheads, business cards, advertisement, posters, title pages, logos, packaging, front view of home, floor plan, map to your home.</p>
Workstation Management	<ul style="list-style-type: none"> apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> good health and safety (posture, positioning of hardware and furniture) security for hardware, software, supplies and personal work demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> start-up procedures organization of work area closing procedures apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> plan activities organize data, information, resources consider alternatives evaluate activities/results use related terminology to describe basic processes, procedures and tools. 	

COURSE INF1050: DATABASE 1**Level:** Introductory**Theme:** Productivity Software**Prerequisite:** None

Description: Students are introduced to the basic commands and functions of database software, and demonstrate how this software can be used as a personal tool in data and information management.

Parameters: Computer workstation, disk, database software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate basic electronic database software competence, by:<ul style="list-style-type: none">– creating databases	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• creating database files/records to solve problems using basic database software functions:<ul style="list-style-type: none">– define problem (e.g., manage information, make decisions)– plan, design and create databases to solve problems– enter data into database files– display and print files– use of appropriate software commands and functions to create database files, enter data and print. <i>Assessment Tool</i> <i>Assessment Checklist: Databases (INFDB)</i> <i>Standard</i> <i>Rating of 1 in the creation of error-free, well-designed database files</i>	45

COURSE INF1050: DATABASE 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> manipulating data and preparing reports 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> manipulating database files in the preparation of reports: <ul style="list-style-type: none"> search/query database files to retrieve selected information plan and present selected data visually through the creation of reports use appropriate software commands and functions to query/search database files and create reports. analyze data to make recommendations and conclusions. <p><i>Assessment Tool</i> <i>Assessment Checklist: Databases (INFDB)</i></p> <p><i>Standard</i> <i>Rating of 1 in the creation of error-free, well-designed reports</i></p>	45
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 – Workstation Use 2 – File Management 1 – Time Management/Organization 2 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF1050: DATABASE 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe key features of the database software: <ul style="list-style-type: none"> capabilities/applications system requirements platform options command structure use help functions and references as appropriate demonstrate appropriate commands and functions to organize information in fields demonstrate appropriate commands and functions to input and process data: <ul style="list-style-type: none"> open, create and save database files enter text and values enter formulas to calculate and recalculate use number pad to enter values use keyboard to enter labels demonstrate appropriate commands and functions to format fields: <ul style="list-style-type: none"> alignment number format (\$, %, decimals) text styles font type and size field length borders and shading formulas demonstrate appropriate commands and functions to edit and manipulate data: <ul style="list-style-type: none"> proofread, edit (cut, copy, paste, clear) search calculate change sequence demonstrate appropriate commands and functions to sort data (ascending and descending): <ul style="list-style-type: none"> alphabetic numeric subject 	<p>Check data input for accuracy.</p> <p>Highlighting to change.</p> <p>Changing size.</p> <p>Update files/records.</p> <p>View files/split screen.</p>

MODULE INF1050: DATABASE 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • move through a database efficiently by using appropriate cursor movement tools and commands • demonstrate appropriate commands and functions to create well-formatted reports: <ul style="list-style-type: none"> – select and sort files for reports – title reports – calculate statistics in a reports – select text style, font type and size – determine column sequence and size – modify data for specific reports • demonstrate appropriate commands and functions to retrieve, display and print information: <ul style="list-style-type: none"> – form view – list view – query view – report view – print files and reports in portrait and landscape. 	<p>Move through record(s) efficiently:</p> <ul style="list-style-type: none"> – cursor movement/status line/mouse – split screen/move between planes/remove split.
Document Production	<ul style="list-style-type: none"> • access data and define problems (e.g., manage information, make decisions) • plan and design database files to solve problems: <ul style="list-style-type: none"> – identify fields (location, name and size) • input and process data: <ul style="list-style-type: none"> – create template file – enter data into files – update and edit data in files • output reports: <ul style="list-style-type: none"> – save files – manipulate data – preview records – print records • demonstrate appropriate format specifications and layout to create appropriate reports • analyze data to draw conclusions and make recommendations • cite references of data where appropriate. 	<p>Update files as required to add, delete and edit records.</p> <p>Topic suggestions. Personal information. Student demographics. Collections:</p> <ul style="list-style-type: none"> – sports pools – music/tapes – books. <p>Identify/collect/organize information/ resources.</p>

MODULE INF1050: DATABASE 1 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF1060: SPREADSHEET 1**Level:** Introductory**Theme:** Productivity Software**Prerequisite:** None**Description:** Students have an opportunity to use basic functions and commands in spreadsheet software for general data manipulation and personal record keeping.**Parameters:** Computer workstation, disk, spreadsheet software, support resources.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate basic electronic spreadsheet software competence, by:<ul style="list-style-type: none">creating spreadsheets	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">creating spreadsheets to solve problems using basic spreadsheet software functions:<ul style="list-style-type: none">define problems (e.g., manage information, make decisions)plan, design and create spreadsheets to solve problemsenter data onto spreadsheetspreview/print spreadsheetsuse appropriate software commands and functions to create spreadsheets, enter data and print. <i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheets (INFSS)</i> <i>Standard</i> <i>Rating of 1 in the creation of error-free, well-designed spreadsheets</i>	45
<ul style="list-style-type: none">manipulating data and preparing chart graphs	<ul style="list-style-type: none">manipulating data in spreadsheets to visually present data in chart graph format:<ul style="list-style-type: none">select data from spreadsheet to present in graphic formatselect appropriate graph to present dataplan and present data visually through the creation of chart graphsuse appropriate software commands and functions to create visually pleasing detailed graphsanalyze data to draw conclusions and recommendations.	45

COURSE INF1060: SPREADSHEET 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <p><i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheets (INFSS)</i></p> <p><i>Standard</i> <i>Rating of 1 in the creation of error-free, well-designed chart graphs</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>2 – File Management</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

MODULE INF1060: SPREADSHEET 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe key features of the spreadsheet software: <ul style="list-style-type: none"> capabilities/applications system requirements platform options command structure uses help functions and references as appropriate demonstrate appropriate commands and functions to input and process data: <ul style="list-style-type: none"> open/create/save files enter text (headings and labels) enter values (numbers, dates, time) enter formulas to calculate and recalculate data replicate cells/formulas use number pad—values use keyboard—labels demonstrate appropriate commands and functions to format cells, rows, columns: <ul style="list-style-type: none"> alignment number format (\$, %, decimals) text styles font types/sizes column widths/row heights borders/shading demonstrate appropriate commands and functions to enter basic formulas using: <ul style="list-style-type: none"> operators (+, -, *, /) number, constant values (e.g., 1, 10, 12.5, -16) cell and range references (e.g., A10, A1:A25) functions (e.g. sum, avg., min/max) copy/paste or fill functions demonstrate appropriate commands and functions to edit cells, rows, columns, data: <ul style="list-style-type: none"> moving data and formulas copying clearing replacing demonstrate appropriate commands and functions to sort data (ascending, descending): <ul style="list-style-type: none"> numeric alphabetic 	<p>Create a spreadsheet by:</p> <ul style="list-style-type: none"> identifying an application designing the format. <p>Potential projects:</p> <ul style="list-style-type: none"> personal worksheets budgets recipes grades records inventories financial problem solving table comparisons.

MODULE INF1060: SPREADSHEET 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Commands and Functions (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • move through worksheet(s) efficiently by using appropriate cursor movement tools/commands: <ul style="list-style-type: none"> – split screen – freeze • use appropriate software commands and functions to create visually pleasing detailed graphs: <ul style="list-style-type: none"> – name/update/open charts – label axes – select colours and patterns – label legends, titles and subtitles – select fonts (types and sizes) – use gridlines and borders – change page and margin settings • demonstrate appropriate commands and functions to output results: <ul style="list-style-type: none"> – display worksheets and graphs: – print worksheet and chart graphs: <ul style="list-style-type: none"> • portrait • landscape • use appropriate headers/footers/references. 	
Document Production	<ul style="list-style-type: none"> • access data and define problems (manage information and make decisions) • plan and design spreadsheets to solve problems: <ul style="list-style-type: none"> – identify columns and rows (location, name, size) • input and process data: <ul style="list-style-type: none"> – create worksheet template – enter data into spreadsheet – update and edit data on worksheet • output data: <ul style="list-style-type: none"> – print worksheets in alternate formats (portrait and landscape) – create visual presentations of data through chart graphs: <ul style="list-style-type: none"> • select data from spreadsheets to present in graphic format • select appropriate chart graphs • plan and present data in chart graphs 	

MODULE INF1060: SPREADSHEET 1 (continued)

Concept	Specific Learner Expectations	Notes
Document Production (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • analyze data to draw conclusions and recommendations • print chart graphs in alternative formats • cite references of data where appropriate. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF1070: HYPERMEDIA TOOLS

Level: Introductory

Theme: Productivity Software

Prerequisite: None

Description: Students develop basic skills with tools used for computerized presentations involving text, data, graphics, sound and animation.

Parameters: Computer workstation, disk, hypermedia software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate basic hypermedia software competence, by:<ul style="list-style-type: none">– accessing hypermedia tools– applying hypermedia tools to produce a short presentation– using hypermedia tools to edit a short presentation	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• production of a short presentation consisting of the following:<ul style="list-style-type: none">– planning:<ul style="list-style-type: none">• demonstrate ability to use software commands and functions of selected hypermedia software program• make decisions regarding text, sound, graphics, video and animation• prepare a storyboard– producing the presentation by using appropriate software commands and functions to:<ul style="list-style-type: none">• select, enhance and manipulate text• select and manipulate graphics• select and manipulate sound• insert premade video clip• create a frame, object or cell-based animation clip– editing the presentation by:<ul style="list-style-type: none">• proofreading for spelling and accuracy of facts• check graphics• test program links to make sure they work appropriately• edit to enhance the quality of the presentation. <p><i>Assessment Tool</i> <i>Assessment Checklist: Multimedia Software Functions (INFMMSF) and Multimedia Productions and Presentations (INFMMDOC)</i> <i>Standard</i> <i>Rating of 1 in the production of presentation</i></p>	<p>20</p> <p>50</p> <p>20</p>

COURSE INF1070: HYPERMEDIA TOOLS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>2 – File Management</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Multimedia Skills	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • access hypermedia program • tour program with direction • select and use teacher-specified program components • complete tasks assigned covering accessing and manipulating: <ul style="list-style-type: none"> – text – data – graphics – sound – animation. 	<p>Skills are built in this part of the course that can be applied in the production of the presentation.</p> <p>Teachers will need to determine the extent of the skill development required by their students.</p>

MODULE INF1070: HYPERMEDIA TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Multimedia Application	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • produce a short presentation using the following process: <ul style="list-style-type: none"> – identify project – design storyboard – determine components (text, sound, graphics, video, animation) – collect required support resources – produce presentation – present presentation. 	Students should be able to produce a simple presentation with limited assistance. Teachers will need to determine the minimum skill requirements.
Multimedia Software Commands	<ul style="list-style-type: none"> • apply hypermedia software commands to: <ul style="list-style-type: none"> – load/create/customize/modify multimedia presentation • enter data: <ul style="list-style-type: none"> – key load data – create/import graphics – access/manipulate presentation components – create background – edit/modify/update buttons, cards, fields – use resident commands/scripting to link pages – incorporate text (alphabetic, numeric), graphics, motion, sound • display/print/export: <ul style="list-style-type: none"> – pages/components – report on stored information. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures 	

MODULE INF1070: HYPERMEDIA TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF1080: PROGRAMMING 1

Level: Introductory

Theme: Programming

Prerequisite: None

Description: Students are introduced to computer programming languages and a structured programming environment, and they construct algorithms and code instructions to solve identified problems.

Parameters: Workstation, programming language, language code manual, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate basic computer programming skills, by:<ul style="list-style-type: none">– creating algorithms to solve problems– applying introductory, structured computer coding programming skills	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• developing programs that demonstrate the ability to solve problems through the efficient use of algorithms and language syntax. Demonstrate ability to:<ul style="list-style-type: none">– use a linear algorithm to provide a solution to a problem– arrange the components of the problem in the categories of input, process and output– interpret the output required– use language-specific techniques to assign values to variables and constants– employ language-specific mathematical operators for addition, subtraction, multiplication, division– illustrate language-specific structures for output formatting– test specific data to verify the validity of the program– document program internally and externally. <p><i>Assessment Tools</i> <i>Assessment Checklist: Introductory and Intermediate Programming (INFPRGM1)</i> <i>Programming: Sample Assignment 1A (INFPSAM1)</i></p> <p><i>Standard</i> <i>Rating of 1 in all phases of program development</i></p>	90

COURSE INF1080: PROGRAMMING 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>1 – Workstation Use</i> <i>2 – File Management</i> <i>1 – Time Management/Organization</i> <i>2 – Professionalism</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Computer Software	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain how software is the interface between humans and computer hardware and converts general-purpose computers into specialized problem-solving systems • describe the purpose of system software: <ul style="list-style-type: none"> – operating systems (command-driven, icon-driven) – language translators (assemblers, compilers, interpreters) – utilities (preprogrammed functions) • describe application software: <ul style="list-style-type: none"> – application packages (text, data, graphics, process control, simulations) – customized programs (written for specific organizational function) • differentiate between integrated and dedicated software 	

MODULE INF1080: PROGRAMMING 1 (continued)

Concept	Specific Learner Expectations	Notes
Computer Software (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> research sources of software availability: <ul style="list-style-type: none"> externally internally (in-house development/organizational processing) research software resource support: <ul style="list-style-type: none"> user's manual operating instructions copyright contract describe the purpose of a computer programming language describe computer programming language categories: <ul style="list-style-type: none"> machine-oriented procedure-oriented object-oriented identify several computer languages/structures and their focus compare several computer language instructions identify data types/strings describe constants, variables describe methods of program data input: <ul style="list-style-type: none"> embed data in program read a data file enter interactively explain data manipulation/processing: <ul style="list-style-type: none"> operators decision control branching looping illustrate various formats for data/information output: <ul style="list-style-type: none"> text reports data tables graphics explain the differences between programming and code cutting. 	Buy lease, shareware, network/electronic bulletin board, retail outlets, computer manufacturers, magazines, professional association, user groups.

MODULE INF1080: PROGRAMMING 1 (continued)

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the purpose of an algorithm • describe flowchart symbols • analyze a structured design • identify/describe the problem • describe each step required to solve the problem • describe the appropriate logic to achieve the solution • create a structured schematic/flowchart or pseudocode indicating how the solution will be achieved. 	
Structured Programming	<ul style="list-style-type: none"> • differentiate between syntax and logic • describe/illustrate examples of structured programming and indicate why it is important: <ul style="list-style-type: none"> – top-down programming • explain structured programming constructs: <ul style="list-style-type: none"> – sequence, selection – repetition. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • code simple programming tasks (i.e., I/P/O program following predefined format) • prepare simple displays of text/data/font graphics • key/code simple computer program(s) to solve simple problem(s): <ul style="list-style-type: none"> – identify logical solution – flowchart the algorithms – design output format – code the instructions – test run program – debug/edit – execute program – assess activities/results. 	

MODULE INF1080: PROGRAMMING 1 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF1090: INFORMATION HIGHWAY 1**Level:** Introductory**Theme:** Dynamic Environment**Prerequisite:** None**Description:** Students develop personal use Internet skills for accessing and communicating data and information, with particular emphasis on the world wide web and email.**Parameters:** Access to a computer workstation and the Internet.**Supporting Course:** INF1030 Word Processing 1**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate knowledge of the history of the Internet and of its basic functions	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">a project related to:<ul style="list-style-type: none">history of the Internetaccess to Internetusing basic terminology and commandsexploring the Internet to discover its potentialfinding information regarding proper “netiquette” (Internet etiquette)personal safety and security. <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 1 – Getting Started (INF1090–1)</i> <i>Standard</i> <i>Rating of 1 for each applicable task</i>	20
<ul style="list-style-type: none">demonstrate ability to communicate with others through the Internet	<ul style="list-style-type: none">communicating through the Internet (internal or external) using e-mail and at least one other of the following:<ul style="list-style-type: none">on-line chattingnewsgroupsmailing lists/listservsother technologies as they emerge. <i>(Note: This is a dynamic list that changes rapidly as technologies come and go; learning opportunities should reflect what is currently available.)</i> <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 1 – Communicating (INF1090–1)</i> <i>Standard</i> <i>Rating of 1 for each applicable task</i>	30

COURSE INF1090: INFORMATION HIGHWAY 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate ability to access and report specific information from the world wide web 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> accessing specific information through a prescribed research topic: <ul style="list-style-type: none"> use a variety of directories and search engines to locate specific information download information cut/paste/edit, format collected data into a report/presentation properly cite information from Internet sources. <p><i>Assessment Tool</i> <i>Assessment Guide: Information Highway 1 – Access and Report Specific Information (INF1090-1)</i></p> <p><i>Standard</i> <i>Rating of 1 for each applicable task</i></p>	40
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstration of appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 1 – Workstation Use 2– File Management 1– Time Management/Organization 2– Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observation of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF1090: INFORMATION HIGHWAY 1 (continued)

Concept	Specific Learner Expectations	Notes
Getting Started	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • explain the difference between the Internet and the World Wide Web • define and describe the Internet; e.g., FTP, www, gopher, telnet • identify various uses of the Internet for: <ul style="list-style-type: none"> – personal use – educational use – business use • compare functions and terminology between e-mail, the Internet and commercial on-line services • define and identify service providers • use compatible software to access the Internet • access web site addresses • describe ethical uses of the Internet • locate and discuss information related to netiquette (network etiquette) • research issues and strategies related to maintaining personal safety and security • read, describe and sign required consent form regarding acceptable use policies as set out by provider of service. 	<p>Exchange ideas, retrieve information for research and personal use, try software, move information to others, requirement for future employment, on-line chats, shopping, advertising.</p> <p>Many school districts require students to sign a consent form before access to Internet is allowed.</p>
Communicating	<ul style="list-style-type: none"> • use an e-mail program: <ul style="list-style-type: none"> – gain access to mail – obtain and use an e-mail address – practise sending mail to self and others – send attachments/enclosures – access mailbox; read and file mail – reply to an e-mail message sent to him or her – organize mailbox (file, delete, save messages to student's own account) • research live chat sites, newsgroups, listservs • describe and/or use net phone • identify other emerging communication strategies related to the Internet. 	<p>Note: Internal e-mail can be used to simulate Internet e-mail.</p>

MODULE INF1090: INFORMATION HIGHWAY 1 (continued)

Concept	Specific Learner Expectations	Notes
Finding, Collecting, Editing and Reporting Data	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify net servers and when to use each • identify search engines • use search engines efficiently • research various web sites within the Internet: <ul style="list-style-type: none"> – use search engines – access files – use menu alternatives (bookmarks, icons, keying in) • read and print file(s) • download files and/or sites (text, sound, graphics, video) • cut/paste/edit and format collected data into a report/presentation • properly cite Internet sources • use bookmarks (add, delete). 	<p>See <i>PC World</i>, Jan./96, pp. 125–129, for searching techniques.</p> <p>Note: A teacher-directed research project is more appropriate at this level.</p> <p>See latest edition of APA manual.</p>
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation positions and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies when using the Internet and on-line commercial services • use related terminology to describe basic protocols, processes and tools. 	

MODULE CURRICULUM AND ASSESSMENT STANDARDS: SECTION E: INTERMEDIATE LEVEL

The following pages define the curriculum and assessment standards for the intermediate level of Information Processing.

Intermediate level modules help students build on the competencies developed at the introductory level and focus on developing more complex competencies. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the strand.

Module INF2010:	Workstation Operations	E.3
Module INF2030:	Keyboarding 2.....	E.9
Module INF2040:	Keyboarding 3.....	E.13
Module INF2050:	Word Processing 2	E.17
Module INF2060:	Electronic Publishing 1	E.21
Module INF2070:	Database 2	E.27
Module INF2080:	Spreadsheet 2	E.31
Module INF2090:	Correspondence	E.35
Module INF2100:	Reports	E.39
Module INF2110:	Tables/Forms	E.43
Module INF2120:	Software Integration 1	E.49
Module INF2130:	Multimedia Authoring 1	E.53
Module INF2140:	Process Control	E.57
Module INF2150:	Programming 2	E.61
Module INF2160:	Programming 3	E.67
Module INF2170:	Programming 4	E.75
Module INF2180:	Programming 5	E.81
Module INF2190:	Telecommunications 1	E.87
Module INF2200:	Information Highway 2	E.93

COURSE INF2010: WORKSTATION OPERATIONS

Level: Intermediate

Theme: System Operations

Prerequisite: None

Course Description: Students learn computer workstation operations, including computer architecture, peripherals, configurations, operating system environments and platforms, utility software, diagnostic and protection software, hard drive file updating and maintenance, support resource application and troubleshooting activities.

Course Parameters: Computer workstation, disk, utility software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• use file management procedures efficiently• install and use software to support the integrity of workstation hardware	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• a workstation project demonstrating the ability to<ul style="list-style-type: none">– set up and install a system:<ul style="list-style-type: none">• identify need of users and tools (software, hardware)• design a plan for installation and configuration of the system• organize tools for installation and configuration• use manuals during the set-up and installation process• connect hardware (e.g., system and cabling)• install software (well-organized and appropriately named directories on specified drive) for a variety of software including operating system, applications and utilities. <p><i>Assessment Tool</i> <i>Assessment Guide: Workstation Operations, Set Up and Install a System (INF2010–1)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	50

COURSE INF2010: WORKSTATION OPERATIONS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • configure and maintain workstation hardware 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> – troubleshoot software and hardware: <ul style="list-style-type: none"> • test system after installation • test system with users for satisfaction • build a defence system against viruses • build a defence system against intentional and unintentional use exploration • identify and organize available resources for users (e.g., help, tutorials, manuals, courseware) – manage and maintain a system: <ul style="list-style-type: none"> • outline long-term plan for upgrading technology • establish policy and procedures of effective use of the technology • provide training and support for those using system. <p><i>Assessment Tool</i> <i>Assessment Guide: Workstation Operations (INF2010-1)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	<p>40</p>
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	<p>10</p>
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

MODULE INF2010: WORKSTATION OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Software Installation and Use	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • install/update software: <ul style="list-style-type: none"> – create/use directories/folders backup/restore files – save/load files in various formats • use appropriate operating system software commands for: <ul style="list-style-type: none"> – defaults/supervising/housekeeping • use utilities software: <ul style="list-style-type: none"> – pre-established routines – diagnostic – viral protection – communications – shell – spooler • use application software: <ul style="list-style-type: none"> – integrated/independent software – windows – menus/icons – help screens • use language translators: <ul style="list-style-type: none"> – assemblers – compilers – interpreters • load software application packages/customized programs • recommend software applications: <ul style="list-style-type: none"> – identify system requirements for various software packages. 	Computer information processing systems consist of specific activities—input, process, output, storage. However, each of these functions involves the interface of various hardware components integrally supported by a variety of software programs all integrated into a particular operating system.
Hardware Configuration and Use	<ul style="list-style-type: none"> • configure/interface hardware/peripherals, communication protocols: <ul style="list-style-type: none"> – arrange physical placement of peripherals/components – connect/disconnect/reconnect communication lines • compare architecture/functions of computer processing systems (both standalone and network): <ul style="list-style-type: none"> – processors – input/output hardware 	

MODULE INF2010: WORKSTATION OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Hardware Configuration and Use (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> – storage components/capacity – interface protocols – clock speed – physical dimensions – size • describe/use available computer platforms: <ul style="list-style-type: none"> – DOS – UNIX. 	
Policies and Procedures	<ul style="list-style-type: none"> • follow established troubleshooting procedures for: <ul style="list-style-type: none"> – diagnosis – remediation • describe effective policies and procedures for: <ul style="list-style-type: none"> – system/software access – security/protection – data integrity – obsolescence – ethical considerations – legal constraints – managing environmentally friendly routines: <ul style="list-style-type: none"> • paper disposal • toner/ribbon • old equipment. 	Follow hardware/software and educational instructions.

MODULE INF2010: WORKSTATION OPERATIONS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2030: KEYBOARDING 2

Level: Intermediate

Theme: Text/Data Input

Prerequisite: INF1020 Keyboarding 1

Module Description: Students enhance their personal use keyboarding competencies by increasing the rate of accurate touch keystroking of the alphabetic, numeric and selected punctuation keys.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate keyboarding competence:<ul style="list-style-type: none">at 30 words per minute (wpm)numeric entry at 100 keystrokes per minute (kpm)technique	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">three timed writings, each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding :<ul style="list-style-type: none">on alphabetic keys<ul style="list-style-type: none">two-minute durationmaximum one uncorrected error$SI \leq 1.25$minimum keystroke rate: 30 words per minuteon numeric keys:<ul style="list-style-type: none">one-minute durationmaximum one uncorrected error100 numeric keystrokes a minute on 1 to 3 digit numbers. <i>Assessment Tool</i> <i>Reference Chart: Keyboarding and Numberpad Rates (INFKEYNB)</i> <ul style="list-style-type: none">observations over the last quarter of the learning period, during timings and drill work. <i>Assessment Tool</i> <i>Assessment Checklist: Text–Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> 3– Eye Focus 3 – Keystroking 2 – Service Keys 3 – Body Position	<div>50</div> <div>10</div> <div>30</div>

MODULE INF2030: KEYBOARDING 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> – alphabetic keys – number keys – punctuation keys (.,:;?'“()!-_) – symbol keys \$., &, % – service keys (enter, shift, delete, backspace, tab) • use function and cursor movement keys efficiently 	Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (12 seconds to one minute) with straight copy text of varying SI (1.0–1.4).

MODULE INF2030: KEYBOARDING 2 (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• demonstrate correct keystroking technique:<ul style="list-style-type: none">– enter text using designated fingers– maintain home-row anchor position– demonstrate correct posture (hands, arms, body)• proofread and edit text (screen and hard copy) to ensure text is without error• analyze errors and initiate remediation as appropriate for:<ul style="list-style-type: none">– spelling, shifting, punctuation and spacing errors– transposed, repeated, omitted letters.	
Data Entry	<ul style="list-style-type: none">• demonstrate rapid, accurate data entry on keyboard number pad:<ul style="list-style-type: none">– using designated fingers– maintaining anchor position.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2040: KEYBOARDING 3

Level: Intermediate

Theme: Text/Data Input

Prerequisite: INF2030 Keyboarding 2

Module Description: Students enhance their keyboarding competencies, by increasing the rate of accurate touch keystroking of alphabetic, numeric and all punctuation keys to support personal use and limited, entry-level, workplace opportunities.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate keyboarding competence:<ul style="list-style-type: none">text entry at 40 words per minute (wpm)numeric entry at 120 keystrokes per minute (kpm)technique	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">three timed writings, each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding :<ul style="list-style-type: none">on alphabetic keys<ul style="list-style-type: none">two-minute durationmaximum one uncorrected errorSI 1.2 – 1.35minimum keystroke rate: 40 words per minuteon numeric keys:<ul style="list-style-type: none">one-minute durationmaximum one uncorrected error120 numeric keystrokes a minute on 1 to 4 digit numbers. <i>Assessment Tool</i> <i>Reference Chart: Keyboarding and Numberpad Rates (INFKEYNB)</i> <ul style="list-style-type: none">observations over the last quarter of the learning period, during timings and drill work. <i>Assessment Tool</i> <i>Assessment Checklist: Text-Data Entry (INFTDENT)</i> <i>Standard</i> <i>Rating of:</i> <ul style="list-style-type: none">4 – Eye Focus3 – Keystroking2 – Service Keys3 – Body Position	<p>50</p> <p>10</p> <p>30</p>

MODULE INF2040: KEYBOARDING 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate increasingly rapid, accurate touch keystroking on straight copy of: <ul style="list-style-type: none"> – alphanumeric keys – all punctuation keys – service keys (enter, shift, backspace, tab) • use function and cursor movement keys efficiently • demonstrate correct keystroking technique: <ul style="list-style-type: none"> – enter text using designated fingers – maintain home-row anchor position – demonstrate correct posture (hands, arms body) • proofread and edit text (screen and hard copy) to ensure text is error free 	<p>Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (.5 to one minute) with straight copy text of varying SI (1.2–1.5).</p>

MODULE INF2040: KEYBOARDING 3 (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<i>The student should:</i> <ul style="list-style-type: none">• analyze errors and initiate remediation as appropriate for:<ul style="list-style-type: none">– spelling, shifting, punctuation and spacing errors– transposed, repeated, omitted letters.	
Data Entry	<ul style="list-style-type: none">• demonstrate rapid, accurate data entry on keyboard number pad:<ul style="list-style-type: none">– using designated fingers– maintaining anchor position.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2050: WORD PROCESSING 2

Level: Intermediate

Theme: Productivity Software

Prerequisites: INF1020 Keyboarding 1
INF1030 Word Processing 1

Module Description: Students expand their skills in using word processing software commands and functions to produce mailable reports and correspondence, including letters, memorandums and tables, all from rough draft copy.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Supporting Module: INF2030 Keyboarding 2

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate correct use of word processing software functions by producing mailable, well-formatted:<ul style="list-style-type: none">– paginated reports, with headers, footers and title pages– letters with special notations in a designated letter style– memorandums	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• producing mailable documents, based on formatted and unformatted sources focusing on the continued learning and improved use of software functions through personal and business applications including a collection of:<ul style="list-style-type: none">– reports containing:<ul style="list-style-type: none">• headings and subheadings• headers/footers• outline• display paragraph• title page• references (footnotes, endnotes, bibliography).– letters containing basic letter parts plus:<ul style="list-style-type: none">• special notations• a specified style• a subject line• an attention line– memorandums containing:<ul style="list-style-type: none">• basic memo parts• use of a memorandum style	<div>30</div> <div>20</div> <div>10</div>

MODULE INF2050: WORD PROCESSING 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – multicolumn tables with borders and footnotes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> – multicolumn tables containing: <ul style="list-style-type: none"> • main titles and subtitles • column heads • borders • footnotes • sorted • box/ruled. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i></p> <p><i>Standard</i> <i>Rating of 2 in the production of mailable documents (no errors in text and well formatted)</i></p>	30
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF2050: WORD PROCESSING 2 (continued)

Concept	Specific Learner Expectations	Notes
Basic Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe key features of the word processing software package: <ul style="list-style-type: none"> capabilities system requirements platform options command structure demonstrate improvement in the use of previously learned software functions use help functions and references as appropriate move through document(s) efficiently by using appropriate cursor movement tools/commands. 	<p>This is important if using a different word processing software package</p> <p>Arrows, select, undo, goto.</p>
New Software Functions and Applications	<ul style="list-style-type: none"> demonstrate skill in the use of additional software functions including: <ul style="list-style-type: none"> columns and tables footnotes/endnotes drawing tools inserting graphics in boxes preset macros create simple macros templates autotext mail merges envelopes and labels features basic math calculations other formatting functions such as style gallery auto format, auto table additional auto functions such as table of contents, figures, index, outlines. 	

MODULE INF2050: WORD PROCESSING 2 (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate key commands to produce the following documents in mailable form: <ul style="list-style-type: none"> – reports: <ul style="list-style-type: none"> • headings/subheading • references (footnotes, end notes, bibliography) • headers/footers • displayed paragraphs • title page – outlines – personal and business correspondence: <ul style="list-style-type: none"> • letter parts (date, inside address, salutations, complimentary closing, name/title, references) • letter styles • subject/attention lines • special notations – memorandums: <ul style="list-style-type: none"> • memo parts • memo styles – tables (single/multicolumn): <ul style="list-style-type: none"> • headings • borders/shading • rulers/tabs. 	<p>Mailable form: error free and well formatted.</p> <p>Print documents in both portrait, landscape.</p> <p>Use software table functions.</p>
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF2060: ELECTRONIC PUBLISHING 1

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1030 Word Processing 1

Description: Students develop skill, using electronic/desktop publishing software to create a variety of camera-ready documents.

Parameters: Computer workstation, disk, electronic/desktop publishing software, support resources.

Supporting Course: INF1040 Graphics Tools

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">demonstrate basic electronic publishing software competence, by using page make-up tools and commands to produce camera-ready publications	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">reproducing accurate, well-designed one- and two-page camera-ready publications focusing on the use of basic software functions and layout principles including:<ul style="list-style-type: none">– use of basic formatting functions– use of page make-up tools (including pointer, line, text, rectangle, oval, cropping, etc.)– basic editing functions– layout principles such as optical centre, balance, white space, columns, Z pattern, contrast, rhythm, unity. <p><i>Assessment Tools</i> <i>Assessment Checklist: Electronic Publishing Software Functions (INFEPSF)</i> <i>Assessment Checklist: Electronic Publishing Document Production (INFEPDOC)</i></p> <p><i>Standard</i> <i>Rating of 2 in the production of accurate, well-designed publications</i></p>	45

COURSE INF2060: ELECTRONIC PUBLISHING 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> creating accurate, well-designed one- and two-page original publications focusing on continued use of basic software functions and layout principles including: <ul style="list-style-type: none"> text (body and display) graphics and/or artwork text and graphic enhancement the following of copyright laws layout principles such as optical centre, balance, white space, columns, Z pattern, contrast, rhythm, unity. <p><i>Assessment Tools</i> <i>Assessment Checklist: Electronic Publishing Software Functions (INFEPSF)</i> <i>Assessment Checklist: Electronic Publishing Document Production (INFEPDOC)</i></p> <p><i>Standard</i> <i>Rating of 2 in the production of accurate, well-designed publications</i></p>	45
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF2060: ELECTRONIC PUBLISHING 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe key features of the desktop software package: <ul style="list-style-type: none"> capabilities system requirements platform options command structure describe the factors that affect desktop publishing layout: <ul style="list-style-type: none"> budget considerations time constraints nature of audience/message conditions of presentation describe links/economies between typesetting-publishing and desktop publishing applications demonstrate appropriate key commands to: <ul style="list-style-type: none"> open/create files/templates enter text/graphics: <ul style="list-style-type: none"> scan/import file merge cut and paste name files use help functions and references as appropriate demonstrate appropriate key commands to: <ul style="list-style-type: none"> format text: <ul style="list-style-type: none"> graphics on screen ruler guides columns, borders, margins gutters, baselines alignment, hyphenation letter spacing, kerning, line spacing typefaces (font, style, size) graphics (placement, adjustment) indents and tabs linking text/graphics linking text/graphics book publication graphics (TIFF, ESP, scanned, line art, halftones, gray scales, colour defaults, one-colour) proofread, edit text (enhance, enlarge, crop, size, scale) move through document(s) efficiently by using appropriate cursor movement tools/commands 	<p>Desktop publishing software:</p> <ul style="list-style-type: none"> analyze/evaluate compare distinguishing characteristics. <p>Evaluate software for integration capability with desktop publishing applications:</p> <ul style="list-style-type: none"> word processing spreadsheet database chart graphics presentation graphics. <p>Identify data input (text and graphics) sources.</p> <p>Access available typefaces, clip art.</p> <p>Desktop applications:</p> <ul style="list-style-type: none"> personal documents class assignments signs, announcements, invitations, advertisements brochures (single-, folded-page) school newsletter, newspaper, yearbook community activities business applications.

MODULE INF2060: ELECTRONIC PUBLISHING 1 (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • customize/edit graphics objects/files plan/create customized desktop templates: <ul style="list-style-type: none"> – grid-based – placeholder. 	
Document Production (Output)	<ul style="list-style-type: none"> • demonstrate ability to recreate and create well-designed publications through the use of page layout principles such as: <ul style="list-style-type: none"> – white space – optical centre – balance, formal and informal – 3-D effects – Z pattern – contrast/harmony – rhythm – unity • demonstrate ability to produce accurate publications through the use of proofreading skills • demonstrate appropriate key commands to: <ul style="list-style-type: none"> – save/export desktop publishing and graphics – display files in a variety of formats – print documents • demonstrate appropriate key commands to produce documents in various desktop published and graphics forms. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures 	

MODULE INF2060: ELECTRONIC PUBLISHING 1 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2070: DATABASE 2

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1050 Database 1

Module Description: Students use all the commands and functions of electronic database software that support effective and efficient database applications.

Module Parameters: Computer workstation, disk, database software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate advanced level electronic database software competence, by:<ul style="list-style-type: none">creating hierarchical and relational databases	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">creating database files/records to solve problems using more advanced database software functions:<ul style="list-style-type: none">define problem (e.g., manage information, make decisions)plan, design and create databases to solve problemsenter data into database filescreate links to other database filesdisplay and print filesuse more advanced software commands and functions to create database files, enter data and print. <i>Assessment Tool</i> <i>Assessment Checklist: Databases (INFDB)</i> <i>Standard</i> <i>Rating of 2 in the creation of error-free, well-designed database files</i>	40
<ul style="list-style-type: none">importing and manipulating data and preparing reports	<ul style="list-style-type: none">manipulating database files in the preparation of reports:<ul style="list-style-type: none">link a database file to one or more databasessearch/query database files to retrieve selected informationplan and present selected data visually through the creation of reportsuse appropriate software commands and functions to search/query database files and create reportsanalyze data to make recommendations and conclusions. <i>Assessment Tool</i> <i>Assessment Checklist: Databases (INFDB)</i> <i>Standard</i> <i>Rating of 2 in the creation of error-free, well-designed reports</i>	50

MODULE INF2070: DATABASE 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
<p>Basic Software Commands and Functions</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe key features of the database software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure • demonstrate improvement in the use of previously learned software functions • use help functions and references as appropriate • demonstrate appropriate commands and functions to organize information in fields • demonstrate appropriate commands and functions to input and process data • move through a database efficiently by using appropriate cursor movement tools and commands. 	

MODULE INF2070: DATABASE 2 (continued)

Concept	Specific Learner Expectations	Notes
New Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> compare “dbase” models: <ul style="list-style-type: none"> – hierarchical – relational format file design parameters: <ul style="list-style-type: none"> – field, record – file parameters demonstrate appropriate key commands to: <ul style="list-style-type: none"> – use query language commands to access information – create/import data – incorporate macros create graphic data representations: <ul style="list-style-type: none"> – proofread, edit data – edit graphic representations demonstrate appropriate key commands and functions to link database files to one or more databases. 	<p>Command key/mouse:</p> <ul style="list-style-type: none"> – manual – reference texts – help.
Manipulating Data and Preparing Reports	<ul style="list-style-type: none"> access data and define problems (e.g., manage information, make decisions) plan and design database files to solve problems: <ul style="list-style-type: none"> – identify fields (location, name and size) input and process data.: <ul style="list-style-type: none"> – create template file – enter data into files – update and edit data in files link one or more databases merge a database with other documents query a database to find: <ul style="list-style-type: none"> – selected records that meet several conditions – selected records that do not match a specific condition – use mathematical operators/functions to query – use wildcards in a query – use dates in a query 	<p>Topic ideas:</p> <ul style="list-style-type: none"> – community data – libraries – agricultural inventories – business inventories – help features – flexibility – user friendly – response time.

MODULE INF2070: DATABASE 2 (continued)

Concept	Specific Learner Expectations	Notes
Manipulating Data and Preparing Reports (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • output reports: <ul style="list-style-type: none"> – save files – manipulate data – preview records – print records • demonstrate appropriate format specifications and layout to create appropriate reports • analyze data to draw conclusions and make recommendations • cite references of data where appropriate. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2080: SPREADSHEET 2

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1060 Spreadsheet 1

Module Description: Students demonstrate advanced level spreadsheet commands and functions to calculate and manipulate data and to prepare appropriate reports and printouts in text and graphic format.

Module Parameters: Computer workstation, disk, spreadsheet software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate advanced level electronic spreadsheet software competence, by: <ul style="list-style-type: none"> – creating spreadsheets, including importing data 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • creating spreadsheets to solve problems using more advanced spreadsheet software functions: <ul style="list-style-type: none"> – define problems (e.g., manage information, make decisions) – plan, design and create spreadsheets to solve problems – enter data onto spreadsheets – preview/print spreadsheets – use appropriate software commands and functions to create spreadsheets, enter data and print. <p><i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheets (INFSS)</i></p> <p><i>Standard</i> <i>Rating of 2 in the creation of error-free, well-designed spreadsheets</i></p>	40
<ul style="list-style-type: none"> – manipulating data and preparing charts 	<ul style="list-style-type: none"> • manipulating data in spreadsheets to visually present data in chart graph format: <ul style="list-style-type: none"> – select data from spreadsheet to present in graphic format – select appropriate chart graph to present data – plan and present data visually through the creation of chart graphs – use appropriate software commands and functions to create visually pleasing detailed graphs – analyze data to draw conclusions and recommendations – print reports (portrait and landscape). <p><i>Assessment Tool</i> <i>Assessment Checklist: Spreadsheets (INFSS)</i></p> <p><i>Standard</i> <i>Rating of 2 in the creation of error-free, well-designed spreadsheets</i></p>	50

MODULE INF2080: SPREADSHEET 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Basic Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe key features of the spreadsheet software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure • use help functions and references as appropriate • demonstrate improvement in the use of previously learned software functions • move through document(s) efficiently by using appropriate cursor movement tools/commands. 	

MODULE INF2080: SPREADSHEET 2 (continued)

Concept	Specific Learner Expectations	Notes
Advanced Software Commands and Functions	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate key commands to produce spreadsheets that emphasize the ability to predict/forecast using “what-if” scenarios • demonstrate appropriate key commands to import data • demonstrate appropriate key commands to merge data with other documents • incorporate macros to: <ul style="list-style-type: none"> – edit data – copy/cut/paste – sort – move data and formats – copy data and formats – clear cells, rows and columns – replace cells, rows and columns • use template feature • enhance and modify chart graphs by: <ul style="list-style-type: none"> – changing marker shapes on line graphs – exploding a pie chart – mixing a line and bar graph – merging with another document. 	<p>Identify application(s).</p> <p>Collect/organize information/resources.</p> <p>Design alternative formats/structures.</p> <p>Plan/execute activities.</p> <p>Critique results.</p> <p>Compare the effectiveness of various spreadsheet designs.</p> <p>Calculate/recalculate.</p>
Document Production	<ul style="list-style-type: none"> • access data and define problems (manage information and make decisions) • plan and design spreadsheets to solve problems: <ul style="list-style-type: none"> – identify columns and rows (location, name, size) – incorporate the ability of the spreadsheet to predict/forecast using “what if” scenarios • input and process data: <ul style="list-style-type: none"> – create worksheet template – enter data into spreadsheet – update and edit data on worksheet • output data <ul style="list-style-type: none"> – print worksheets in alternate formats (portrait and landscape) – create visual presentations of data through chart graphs: <ul style="list-style-type: none"> • select data from spreadsheets to present in graphic format 	<p>Incorporate “what-if” possibilities for:</p> <ul style="list-style-type: none"> – travel expenses – problem-solving applications – election predictions, design/cost decision – feed analysis.

MODULE INF2080: SPREADSHEET 2 (continued)

Concept	Specific Learner Expectations	Notes
Document Production (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • select appropriate chart graphs • plan and present data in chart graphs • analyze data to draw conclusions and recommendations • print chart graphs in alternative formats • cite references of data where appropriate. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2090: CORRESPONDENCE

Level: Intermediate

Theme: Applied Processing

Prerequisites: INF2030 Keyboarding 2
INF2050 Word Processing 2

Module Description: Students expand their rate of document production as they prepare various forms of correspondence in mailable form, using word processing software.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate efficient word processing of correspondence through the production of:<ul style="list-style-type: none">– mailable correspondence in a variety of formats under time constraints	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• a collection of produced correspondence consisting of:<ul style="list-style-type: none">– preparation of mailable correspondence under time constraints appropriate for complexity of task, based on unformatted sources– a minimum expected keyboarding competency of 30 wpm based on Keyboarding 2 competency– designing and creating of templates, macros, and/or autotext for a variety of correspondence– production of letters in a variety of styles from unformatted sources including all basic letter parts plus:<ul style="list-style-type: none">• mailing and special notations• attention and subject lines• displayed information• enclosure and copy notations• second page headings– merging letters with multiple records– production of memoranda from unformatted sources– production of a set of labels and envelopes– print and/or e-mail correspondence. <p><i>Assessment Tool</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted correspondence, under time constraints appropriate for complexity of task</i></p>	70

MODULE INF2090: CORRESPONDENCE (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – error-free, well-formatted correspondence 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • editing of existing documents to produce error-free, well-formatted correspondence. <p><i>Assessment Tools</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted, documents</i></p>	20
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate efficient and accurate keystroking and software commands used to open and name files and to produce mailable documents • enter text from formatted copy in which text is: <ul style="list-style-type: none"> – error free – draft, edited – unedited 	<p>Types of correspondence:</p> <ul style="list-style-type: none"> • letters: <ul style="list-style-type: none"> – one page – multipage • memorandums • facsimile cover sheets • envelopes/labels.

MODULE INF2090: CORRESPONDENCE (continued)

Concept	Specific Learner Expectations	Notes
Document Creation (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited. 	<p>Styles</p> <ul style="list-style-type: none"> informal formal.
Document Manipulation and Editing	<ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit and manipulate text replicate, convert and append files prepare templates, macros and autotext paginate documents move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate proofread documents for additional accuracy and formatting. 	<p>Use software-based editing tools such as spell check, thesaurus, grammar check, cut, copy and paste.</p>
Document Production	<ul style="list-style-type: none"> describe the purpose of the correspondence: <ul style="list-style-type: none"> target audience internal/external single/multiple copy demonstrate appropriate key commands to produce and edit mailable letters and memoranda, including the following features: <ul style="list-style-type: none"> designing and creating templates, macros and/or autotext for a variety of correspondence letter parts (date, inside/return addresses, salutations, complimentary closing, name/title, references) letter styles punctuation styles placement letterhead mailing notations address (labels, envelopes) second page headings display paragraphs (e.g., enumerations) form letters/mail merge demonstrate appropriate key commands to print and save documents using alternative formats use e-mail to send letters and memos to teacher. 	<p>All documents should be in mailable form:</p> <ul style="list-style-type: none"> no errors well formatted. <p>Design letterheads, form letters, closings, memo templates.</p>

MODULE INF2090: CORRESPONDENCE (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply correct workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology accurately to describe basic processes, procedures and tools. 	

MODULE INF2100: REPORTS

Level: Intermediate

Theme: Applied Processing

Prerequisites: INF2030 Keyboarding 2
INF2050 Word Processing 2

Module Description: Students expand their rate of production as they prepare various reports and manuscripts in mailable form.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate efficient word processing of reports/manuscripts through the production of:<ul style="list-style-type: none">– mailable reports in a variety of formats under time constraints	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• a collection of produced reports consisting of:<ul style="list-style-type: none">– preparation of mailable reports/manuscripts under time constraints appropriate for complexity of task, based on unformatted sources– a minimum expected keyboarding competency of 30 wpm based on Keyboarding 2 competency– designing and creating of templates, macros, and/or autotext for a variety of reports– production of reports from unformatted sources including the following features:<ul style="list-style-type: none">• title pages• title/headings/subheadings/side headings• table of contents• outlines• display paragraphs/quotes• multicolumn• charts and/or tables• headers/footers• page numbering• citations (footnotes, endnotes, within body)• reference lists and/or bibliographies• appendices• indexes– print and/or e-mail reports. <p><i>Assessment Tools</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted reports, under time constraints appropriate for complexity of task</i></p>	70

MODULE INF2100: REPORTS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – error-free, well-formatted reports 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • editing of existing documents to produce error-free, well-formatted reports. <p><i>Assessment Tool</i> <i>Assessment Checklist: Correspondence (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted reports</i></p>	20
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate efficient and accurate keystroking and software commands used to open and name files and to produce mailable documents • enter text from formatted copy in which text is: <ul style="list-style-type: none"> – error free – draft, edited – unedited • plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> – error free – draft, edited – unedited. 	

MODULE INF2100: REPORTS (continued)

Concept	Specific Learner Expectations	Notes
Document Manipulation and Editing	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit and manipulate text replicate, convert and append files prepare templates, macros and autotext paginate documents move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate proofread documents for additional accuracy and formatting. 	Use software-based editing tools such as spell check, thesaurus, grammar check, cut, copy and paste.
Document Production	<ul style="list-style-type: none"> describe the purpose of the report: <ul style="list-style-type: none"> target audience internal/external single/multiple copy demonstrate appropriate key commands to produce mailable reports, including the following features: <ul style="list-style-type: none"> title page titles/headings/subheadings table of contents outlines bound/unbound formats columns display paragraphs/quotes headers/footers citations (footnotes, reference list, bibliography) appendices/indexes demonstrate appropriate key commands to print and save documents using alternative formats. use electronic mail to send reports to teacher. 	<p>All documents should be in mailable form: no errors, well formatted.</p> <p>Commonly used styles: APA (American Psychological Association) or MLA (Modern Language Association).</p>

MODULE INF2100: REPORTS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2110: TABLES/FORMS

Level: Intermediate

Theme: Applied Processing

Prerequisites: INF2030 Keyboarding 2
INF2050 Word Processing 2

Module Description: Students expand their rate of document production as they prepare various tables/forms in mailable form.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">demonstrate competence in word processing of tables/forms, by:<ul style="list-style-type: none">producing mailable tables in a variety of formats under time constraints	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">a collection of produced tables consisting of:<ul style="list-style-type: none">preparation of mailable tables under time constraints appropriate for complexity of task based on unformatted sourcesa minimum expected keyboarding competency of 30 wpm based on Keyboarding 2 competencydesigning and creating of templates, macros, and/or autotext for a variety of tablesproduction of tables from unformatted sources including the following features:<ul style="list-style-type: none">headings and subheadings (multiline)borders/shadingcell appearances (e.g., fonts, alignment)math calculationssupplemental data (e.g., footnotes)dot leaderstable sortsprint and/or e-mail tables. <p><i>Assessment Tools:</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted tables/forms, under time constraints appropriate for complexity of task</i></p>	40

MODULE INF2110: TABLES/FORMS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – designing a mailable form for a specific purpose and audience 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • a collection of produced forms consisting of: <ul style="list-style-type: none"> – preparation of mailable forms under time constraints appropriate for complexity of task based on unformatted sources – a minimum expected keyboarding competency of 30 wpm based on Keyboarding 2 competency – design, create and use templates for a variety of business forms such as: <ul style="list-style-type: none"> • invoices/credit memos • purchase requisitions/orders • statements of account • employee applications • fax cover sheets – print and/or e-mail forms. <p><i>Assessment Tools</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted forms, under time constraints appropriate for complexity of task</i></p>	30
<ul style="list-style-type: none"> – editing and formatting tables and forms 	<ul style="list-style-type: none"> • editing of existing documents to produce error-free, well-formatted reports. <p><i>Assessment Tool</i> <i>Assessment Checklist: Correspondence, Reports, Tables (INFCRT)</i></p> <p><i>Standard</i> <i>Rating of 2, error-free and well-formatted reports</i></p>	20
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10

MODULE INF2110: TABLES/FORMS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Document Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate efficient and accurate keystroking and software commands used to open and name files and to produce mailable documents enter text from formatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited plan layout and enter text from unformatted copy in which text is: <ul style="list-style-type: none"> error free draft, edited unedited. 	
Document Manipulation and Editing	<ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> edit and manipulate text replicate, convert and append files prepare templates, macros and autotext paginate documents move through document(s) efficiently by using appropriate cursor movement tools/commands use help functions and references as appropriate proofread documents for additional accuracy and formatting 	Use software-based editing tools such as spell check, thesaurus, grammar check, cut, copy and paste.

MODULE INF2110: TABLES/FORMS (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe the purpose of the table/form: <ul style="list-style-type: none"> target audience internal/external single/multiple copy demonstrate appropriate key commands to produce mailable single and multicolumn tables, including the following features: <ul style="list-style-type: none"> headings, subheadings (multiline) borders/shading cell attributes (fonts, justification) special options (sort, split/join cells) rulers/tabs supplemental data (e.g., footnotes) parallel columns merged table (display paragraphs) math calculations dot leaders table sorts plan/create templates for commonly used forms (purchase order, statement, etc.) demonstrate appropriate key commands to enter data and produce mailable forms, including the following examples: <ul style="list-style-type: none"> interoffice memorandums facsimile cover sheets invoices purchase orders credit memos application for employment account statements demonstrate appropriate key commands to print and save documents using alternative formats. use electronic mail to send tables and forms to teacher. 	<p>All document should be in mailable form:</p> <ul style="list-style-type: none"> no errors well formatted.

MODULE INF2110: TABLES/FORMS (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF2120: SOFTWARE INTEGRATION 1

Level: Intermediate

Theme: Applied Processing

Prerequisites: INF1020 Keyboarding 1
INF1030 Word Processing 1
INF1050 Database 1
INF1060 Spreadsheet 1

Course Description: Students develop document production skills requiring the integration of data, text and graphics.

Course Parameters: Computer workstation, disk, word processing software, support resources.

Supporting Courses: INF1040 Graphic Tools

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate word processing and data management systems/ graphics software integration competence, by:<ul style="list-style-type: none">producing mailable word processing documents that integrate spreadsheet, database and/or graphics in a variety of specific applicationsapply, consistently, appropriate workstation routines	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">create two- to three-page document(s) (enter, format, edit and print) from unedited, unformatted sources that integrate data, text, and graphics. Documents should make use of two of the following types of software:<ul style="list-style-type: none">word processingspreadsheetdatabasegraphics (paint and draw, clip art files)editing of documents created to produce error-free, well-formatted document(s). <i>Assessment Tool</i> <i>Assessment Checklist: Software Integration 1, 2 and 3 (INFINTEG)</i> <i>Standard:</i> <i>Rating of 1 in the production of accurate and well-formatted documents</i>	60 30
	<ul style="list-style-type: none">demonstrating appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> <i>2 – Workstation Use</i> <i>3 – File Management</i> <i>2 – Time Management/Organization</i> <i>3 – Professionalism</i>	10

COURSE INF2120: SOFTWARE INTEGRATION 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> follow instructions to customize/personalize existing text and data files load, redesign/reformat, modify existing templates/files containing information from database, spreadsheet, graphics files apply word processing, database, spreadsheet and graphics commands as appropriate to import and merge documents into word processing files manipulate word processing, database, spreadsheet, graphics software to produce mailable documents from drafts: <ul style="list-style-type: none"> edited, formatted edited, unformatted unedited, unformatted. 	
Document Editing	<ul style="list-style-type: none"> format/revise documents to be aesthetically pleasing and well formatted describe the purpose of the document: <ul style="list-style-type: none"> target audience single/multiple/presentation copy print and save documents. 	

MODULE INF2120: SOFTWARE INTEGRATION 1 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2130: MULTIMEDIA AUTHORIZING 1

Level: Intermediate

Theme: Productivity Software

Prerequisite: INF1070 Hypermedia Tools

Module Description: Students are introduced to multimedia software and provided with an opportunity to develop basic authoring competence, by accessing and integrating software resident text, video and audio clips.

Module Parameters: Computer workstation, software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate multimedia authoring competence, by using software resident text, video and audio clips to:<ul style="list-style-type: none">use software-specific commands to access and manipulate text video and audiodevelop a multimedia presentationapply, consistently, appropriate workstation routines	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">planning, producing, editing and testing of a one-minute multimedia presentation that includes text, video and audio with individual components supporting a common theme:<ul style="list-style-type: none">identify, import and modify textual materialidentify, import and modify graphicsidentify, import and modify video clipsidentify, import and modify audio clipsidentify, import and modify animation clips. <i>Assessment Tool</i> <i>Assessment Checklist: Multimedia Software Functions (INFMMSF)</i> <i>Assessment Checklist: Multimedia Productions and Presentations (INFMMDOC)</i> <i>Standard</i> <i>Rating of 2</i> <ul style="list-style-type: none">demonstrating appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> <i>2 – Workstation Use</i> <i>3 – File Management</i> <i>2 – Time Management/Organization</i> <i>3 – Professionalism</i>	<div>20</div> <div>70</div> <div>10</div>

MODULE INF2130: MULTIMEDIA AUTHORIZING 1 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Multimedia Authoring Software Skills	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate ability to use identified multimedia software in the planning of a presentation that includes the importing and modification of: <ul style="list-style-type: none"> text graphics video sound animation identify, locate and access resident text, video, graphics, audio and animation files identify and select software commands for predetermined purpose (e.g., image creation, sequencing, timing rates). 	
Multimedia Authoring Presentation	<ul style="list-style-type: none"> follow planning steps in preparing a multimedia presentation prepare a storyboard, outlining the presentations content and special effects for a particular theme make decisions regarding text, sound, graphics, video and animation select and use appropriate tools, commands and devises apply software commands 	<p>Create presentations for other courses such as English, science, art, and Management and Marketing.</p>

MODULE INF2130: MULTIMEDIA AUTHORIZING 1 (continued)

Concept	Specific Learner Expectations	Notes
Multimedia Authoring Presentation (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • create/save multimedia authored file • key/import, customize/modify text, video, audio, animation source clips • establish window arrangements (characteristic, parameters) • follow accepted principles of layout and design • address the following clip considerations: <ul style="list-style-type: none"> – name, type, frame size, duration, sound quality • edit the sequence (text, video, audio tracks) • edit construction window, clip window • preview segments, tracks, sequence • display output, run project sequence • print/export file(s). 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF2140: PROCESS CONTROL

Level: Intermediate

Theme: Dynamic Environment

Prerequisites: INF1070 Hypermedia Tools

Course Description: Students develop skills in robotics/simulation software control by creating, modifying and using programs that incorporate computer-controlled movements and events in robotics/simulation activities and applications.

Course Parameters: Computer workstation, software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate basic electronic process control software competence, by:<ul style="list-style-type: none">explaining the theory and processes used to control a robot and/or other simulation	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">a presentation (oral, written or visual) explaining basic mechanics and principles of robotics and robotic control:<ul style="list-style-type: none">describe the types of tasks robots performexplain how robotics are affecting society now and in the futurediagram a basic robot, labelling components including the controllerdescribe the functions of labelled componentsexplain the processes used to control robotsgive an example of when it would be feasible to use a robot over a human to perform a taskgive an example of when it would be feasible to use a human over a robot to perform a task. <i>Assessment Tool</i> <i>Assessment Guide: Process Control Project (INF2140-1)</i> <i>Process Control Sample Project (INFPCSAM)</i> <i>Standard</i> <i>Rating of 2 in each applicable task</i>	25
<ul style="list-style-type: none">constructing a robot or cause a robot to function as intended through computer control	<ul style="list-style-type: none">programming a robot: assemble and program a robot to perform a specific task:<ul style="list-style-type: none">describe the task the robot will performfollow a blueprint designprogram the robot	50

COURSE INF2140: PROCESS CONTROL (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> – assess the design capabilities of the completed robot – test the functionality of the robot to perform task – correct any flaws • demonstrate robot functionality. <ul style="list-style-type: none"> – describe the purpose of the robot – demonstrate the use of robot to perform task – explain how the interrupts are used to control the robot. <p><i>Assessment Tool</i> <i>Assessment Guide: Process Control Project (INF2140–1)</i> <i>Process Control Sample Project (INFPCSAM)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	<p>15</p>
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	<p>10</p>
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

MODULE INF2140: PROCESS CONTROL (continued)

Concept	Specific Learner Expectations	Notes
Robotic Theory	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the types of tasks robots perform • explain how robotics are affecting society now and in the future • diagram a basic robot, labelling components including the controller • describe the functions of labelled components • explain the processes used to control robots • give examples of the types of software used to instruct the controller • give an example of when it would be feasible to use a robot over a human to perform a task • give an example of when it would be feasible to use a human over a robot to perform a task. 	
Computer Operations Skills	<ul style="list-style-type: none"> • identify, access and use teacher-specified process control software • use commands and functions to control robot(s) in teacher-specified exercises. 	
Robotics/Simulation Project	<ul style="list-style-type: none"> • design and implement a robotics and/or other computer simulation by following a procedure such as: <ul style="list-style-type: none"> – identify software/application(s) – determine/design algorithm parameters – collect required support resources – input data – apply animation/robotics software commands – load/create/customize/modify robotics/simulation files(s) • demonstrate animation/robotic capability • display/print/export <ul style="list-style-type: none"> – animation/robotics file. 	

MODULE INF2140: PROCESS CONTROL (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2150:	PROGRAMMING 2
Level:	Intermediate
Theme:	Programming
Prerequisite:	INF1080 Programming 1
Module Description:	Students increase their programming skills, by designing and generating programming code to handle decision making and repetitive processes.

Theme: Programming

Module Description: Students increase their programming skills, by designing and generating programming code to handle decision making and repetitive processes.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate basic computer programming skill, by: <ul style="list-style-type: none"> – creating algorithms to solve problems involving decision making and iteration – constructing computer programs involving decision making and iterative processes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • developing programs that (using either procedure or object-oriented programming) demonstrate the efficient use of algorithms and language syntax. Demonstrate the ability to: <ul style="list-style-type: none"> – distinguish conditions within problems that require decision-making and repetitive calculations/operations – examine and create problems in which decision-making conditions exist – examine the repetitive pattern that exists in the problem and distinguish between pretest and post-test iterative structures and predetermined iterative conditions – examine and create problems that define a predetermined number of repetitions – examine and create problems requiring precheck/post-check iterative structures. – construct commands that will increment and decrement variable values based on patterns recognized in the problem – differentiate and apply language-specific reserved words for predefined, precheck and post-check iterative operations – differentiate and apply language-reserved words for decision-making structures – differentiate and apply language-specific relational/logic operators in decision-making and iterative structures. <p><i>Assessment Tool</i> <i>Assessment Checklist: Introductory and Intermediate Programming (INFPRGM1)</i> <i>Programming: Sample Assignment 2A</i></p>	<p>45</p> <p>45</p>

MODULE INF2150: PROGRAMMING 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <p><i>Standard</i> <i>Rating of 2 in the creation and presentation of programs</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify/describe the problem • list each step required to solve the problem • demonstrate the appropriate logic to achieve the solution • apply structured programming constructs to create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.</p>

MODULE INF2150: PROGRAMMING 2 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use constants, variables, data structures, operands • use reserved words, commands, statements, operators • input data using reserved words: <ul style="list-style-type: none"> – embedded/read/enter data • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping • output data using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • research decision-making processes and conditions when used • apply programming syntax to decision-making processes • code simple decision-making commands involving a variety of conditions • discuss and use nested conditional statements • research iterative structures and conditions when used • apply programming syntax to iterative processes • code simple repetitive commands involving a variety of conditions, including nested repetitive structures • describe appropriate use of unconditional branching • identify problem/develop algorithm • design output format • key/code the instructions • test run program 	<p>Decision control (conditional statements). Branching. Looping.</p> <p>Repetition. Iteration. Looping.</p> <p>Counting, specific conditions, incrementing, summation, Boolean relational operators</p>

MODULE INF2150: PROGRAMMING 2 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • debug/edit program • execute program • document program • assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2150: PROGRAMMING 2 (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<i>The student should:</i> <ul style="list-style-type: none">• identify/describe the problem• list each step required to solve the problem• demonstrate the appropriate logic to achieve the solution• apply structured programming constructs to create a schematic/flowchart pseudocode indicating how the solution will be achieved (IPO/HIPO).	
Computer Language Syntax	<ul style="list-style-type: none">• use constants, variables, data structures, operands• use reserved words, commands, statements, operators or predefined classes• input data using reserved words or predefined classes• process data• output data using reserved words or predefined classes.	Embedded/read/enter data. Calculations/ manipulations/decision control/ branching/ looping. Text/data/graphics.
Structured Computer Programming Applications	<ul style="list-style-type: none">• access appropriate computer language resource support• research decision-making processes and conditions when used• apply programming syntax to decision-making processes• code simple decision-making commands involving a variety of conditions• describe and use nested conditional statements• research iterative structures and conditions when used	Decision control (conditional statements). Branching. Looping.

MODULE INF2150: PROGRAMMING 2 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply programming syntax to iterative processes • code simple repetitive commands involving a variety of conditions, including nested repetitive structures • describe appropriate use of unconditional branching • identify problem/develop algorithm • design output format • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	<p>Repetition. Iteration. Looping.</p> <p>Counting, specific conditions, incrementing, summation, Boolean relational operators.</p>
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2160: PROGRAMMING 3

Level: Intermediate

Theme: Programming

Prerequisite: INF2150 Programming 2

Module Description: Students increase their programming skills, by using subprogram structures.

Module Parameters: Access to appropriate computer equipment and software.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">restructure existing computer programs, by:<ul style="list-style-type: none">using subprogram structuresrevising and constructing computer programs involving subprogram structuresmodify the algorithm to isolate the component operations/processes that were incorporated into the subprogram structure	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">developing programs (using either procedure or object-oriented programming) which demonstrate efficient use of algorithms and language syntax Demonstrate the ability to:<ul style="list-style-type: none">assess components of problems which may be isolated in separate subprogramsdistinguish between criteria for selection of appropriate subprogram structuresdistinguish between local and global variablesrevise and construct programs that use local and global variablesrevise and construct programs that use language-specific subprogram structures based on parameters to be passedrevise and construct programs that use language-specific subprogram structures involving one- and two-way parameter passingrevise and construct programs using nested subprogramming structures. <p><i>Assessment Tool</i> <i>Assessment Checklist: Introductory and Intermediate Programming (INFPRGM1)</i> <i>Programming: Sample Assignment 3A</i></p> <p><i>Standard</i> <i>Rating of 2 in the creation and presentation of programs</i></p>	<p>30</p> <p>60</p>

MODULE INF2160: PROGRAMMING 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • modify an existing algorithm(s) • identify/describe the problem • list each step required to solve the problem • demonstrate the appropriate logic to achieve the solution • apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.</p>

MODULE INF2160: PROGRAMMING 3 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use constants, variables, data structures, operands • use reserved words, commands, statements, operators, subroutines, predefined and user-defined functions • input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions • edit/modify existing code • output/link program segments/program using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Program Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • research precoded instructions used as templates: <ul style="list-style-type: none"> – why are they used – when used • code simple instructions to use templates/ library routines • recode existing programs treating text/graphics as subprograms • describe use of procedures/subroutines/functions • describe purpose/use of subprograms/predefined functions • use subroutines/functions in program segments • access/create program segments using complex procedures/functions: <ul style="list-style-type: none"> – use parameters/operators to customize repeating code patterns – one- and two-way parameter passing – nested procedures/functions – scope charts – local/global variables 	<p>Reduces coding/ debugging Under what conditions?</p> <p>Repeating patterns of code.</p>

MODULE INF2160: PROGRAMMING 3 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Program Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply subroutines/functions in a program • produce algorithm • design output format • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2160: PROGRAMMING 3 (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none">• modify an existing algorithm(s)• identify/describe the problem• list each step required to solve the problem• demonstrate the appropriate logic to achieve the solution• apply structured programming constructs to modify/create a schematic/flowchart/ pseudocode indicating how the solution will be achieved (IPO/HIPO).	Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.
Computer Language Syntax	<ul style="list-style-type: none">• use constants, variables, data structures, operands• use reserved words, commands, statements, operators, subroutines, predefined and user-defined functions• input data using reserved words:<ul style="list-style-type: none">– embedded/read/enter data• process data:<ul style="list-style-type: none">– calculations/manipulations/decision control/branching/looping/subroutines/ functions• edit/modify existing code• output/link program segments/program using reserved words:<ul style="list-style-type: none">– text/data/graphics.	
Structured Computer Program Applications	<ul style="list-style-type: none">• access appropriate computer language resource support• research precoded instructions used as templates:<ul style="list-style-type: none">– why are they used– when used• code simple instructions to utilize templates/ library routines/library classes• recode existing programs treating text/graphics as subprograms	<p>Reduces coding/ debugging</p> <p>Under what conditions?</p>

MODULE INF2160: PROGRAMMING 3 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Program Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• describe use of procedures/subroutines/functions• describe purpose/use of subprograms/predefined functions• use subroutines/functions in program segments• access/create program segments using complex procedures/functions:<ul style="list-style-type: none">– use parameters/operators to customize repeating code patterns– one- and two-way parameter passing– nested procedures/functions– scope charts– local/global variables• apply subroutines/functions in a program• develop algorithm• produce output format• key/code the instructions• test run program• debug/edit program• execute program• document program• assess activities/results.	Repeating patterns of code.

MODULE INF2160: PROGRAMMING 3 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2170: PROGRAMMING 4

Level: Intermediate

Theme: Programming

Prerequisite: INF2160 Programming 3

Module Description: Students increase their programming skills, by developing and using derived data types.

Module Parameters: Access to appropriate computer equipment and software.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate evolving computer programming skill, by: <ul style="list-style-type: none"> – creating algorithms to solve problems supporting derived data types such as arrays, character strings, records, sets – creating structured programs using derived data types 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • developing programs (using either procedure- or object-oriented programming) which demonstrate efficient use of algorithms and language syntax. <p>Demonstrate the ability to:</p> <ul style="list-style-type: none"> – categorize problems requiring the use of derived data types – distinguish characteristics of differing derived data types – construct appropriate derived data types based upon problem parameters – create programs using predefined language-specific subprograms to perform operations or derived data type. <p><i>Assessment Tool</i> <i>Assessment Checklist: Intermediate Programming (INFPRGM2)</i> <i>Programming: Sample Assignment 4A (Procedure-oriented) or 4B (Object-oriented)</i></p> <p><i>Standard</i> <i>Rating of 2 in the creation and presentation of programs</i></p>	<p>30</p> <p>60</p>

MODULE INF2170: PROGRAMMING 4 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • modify an existing algorithm(s) • identify/describe the problem • list each step required to solve the problem/list the required components of the data structure • demonstrate the appropriate logic to achieve the solution • apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.</p>

MODULE INF2170: PROGRAMMING 4 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use constants, variables, data structures, operands • use reserved words, commands, statements, operators, subroutines, functions • use single- and multiple-dimensioned arrays, character strings, records and sets • input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values to derived data types • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions • edit/modify existing code • output/link programs or segments of programs using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • describe purpose/use of derived data types • describe the need for/advantages of derived data types • use derived data types in program segments • access/create program segments using derived data types: <ul style="list-style-type: none"> – single/multiple-dimensioned arrays – character strings – records/sets • create program segments that access data stored in derived data types • create program segments that use predefined functions/procedures to process information stored in derived data types • apply derived types in a program • produce algorithm • design output format • key/code the instructions 	<p>Programmers generally do not develop software in isolation but as part of a team of programmers. It is appropriate to introduce the concept of team design work. A group of students can be given a problem where parts of the problem are coded by different students on the team and then they place it together to make a working program.</p>

MODULE INF2170: PROGRAMMING 4 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• test run program• debug/edit program• execute program• document program• assess activities/results.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF2170: PROGRAMMING 4 (continued)

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none">• modify an existing algorithm(s)• identify/describe the problem• list each step required to solve the problem/list the required components of the data structure• demonstrate the appropriate logic/data components to achieve the solution• apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO).	
Computer Language Syntax	<ul style="list-style-type: none">• use constants, variables, data structures, operands• use reserved words, commands, statements, operators, subroutines, functions• use single- and multiple-dimensioned arrays, character strings, records/sets/structures/pointers/classes• input data using reserved words:<ul style="list-style-type: none">– embed/read/enter data– create/assign values/operations to derived data types• process data:<ul style="list-style-type: none">– calculations/manipulations/decision control/branching/looping– subroutines/functions/classes/objects• edit/modify existing code• output/link programs or segments of programs using reserved words or predefined classes:<ul style="list-style-type: none">– text/data/graphics.	
Structured Computer Programming	<ul style="list-style-type: none">• access appropriate computer language resource support• describe purpose/use of derived data types• describe the need for/advantages of derived data types• use derived data types in program segments	

MODULE INF2170: PROGRAMMING 4 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • access/create program segments using derived data types: <ul style="list-style-type: none"> – single/multiple-dimensioned arrays – character strings – records/sets/structures/pointers/classes • create program segments that access data/members of derived data types • create program segments that use predefined functions/procedures and user-defined functions/procedures to process information stored in derived data types • apply derived types in a program • produce algorithm/classes • produce output format • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF2180: PROGRAMMING 5

Level: Intermediate

Theme: Programming

Prerequisite: INF2170 Programming 4

Module Description: Students increase their programming skills, by developing and using recursive, sorting and merging algorithms.

Module Parameters: Access to appropriate computer equipment and software.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate evolving computer programming skills, by:<ul style="list-style-type: none">– examining/creating different recursive, sorting, searching and merging algorithms– revising/creating structured programs containing operations on derived data types	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• developing programs (using either procedure- or object-oriented programming) which demonstrate efficient use of algorithms and language syntax. <p>Demonstrate the ability to:</p> <ul style="list-style-type: none">– examine/create problems requiring sorting, searching and merging algorithms– examine/create problems requiring recursive algorithms– identify the merits (efficiencies) of different sorting, searching and merging algorithms– create and revise programs using standard sort routines (bubble sort, quick sort, insertion sort, selection sort, etc.)– create and revise programs to search sorted and unsorted data (linear and binary searches)– create and revise programs to merge sorted data– create and revise programs to use iterative and recursive routines. <p><i>Assessment Tools</i></p> <p><i>Assessment Checklist: Intermediate Programming (INFPRGM2)</i></p> <p><i>Programming: Sample Assignment 4A (Procedure-oriented) or 4B (Object-oriented)</i></p> <p><i>Standard</i></p> <p><i>Rating of 2 in the creation and presentation of programs</i></p>	<p>30</p> <p>60</p>

MODULE INF2180: PROGRAMMING 5 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrating appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Part A: Procedure-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • modify existing/develop new algorithms • identify/describe the problem • list each step required to solve the problem/list the required components of the data structure • demonstrate the appropriate logic/data components required to achieve the solution • demonstrate the appropriate methods of accessing data in derived data types • compare iterative and recursive routines • measure the efficiency of comparable routines • apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.</p>

MODULE INF2180: PROGRAMMING 5 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use constants, variables, data structures, operands • use reserved words, commands, statements, operators, subroutines, functions • use language-specific derived data types • input data using reserved words: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values to derived data types • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions • edit/modify/existing code • output/link program segments/programs using reserved words: <ul style="list-style-type: none"> – text/data/graphics. 	
Structured Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • describe purpose/use of derived data types • describe the need for/advantages of derived data types • use derived data types in program segments • use/develop/modify iterative and recursive routines to sort/search/merge members of derived data types • identify situations that lend themselves to specific routines • apply appropriate operations on derived data types in a program • produce algorithm • produce output format • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	<p>Programmers generally do not develop software in isolation but as part of a team of programmers. It is appropriate to introduce the concept of team design work. A group of students can be given a problem where parts of the problem are coded by different students on the team and then they place it together to make a working program.</p>

MODULE INF2180: PROGRAMMING 5 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

Part B: Object-oriented Programming

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none">• modify existing/develop new algorithms/classes• identify/describe the problem• list each step required to solve the problem/list the required components of the data structure• demonstrate the appropriate logic/data components required to achieve the solution• demonstrate the appropriate methods of accessing data/methods in derived data types• compare iterative and recursive routines/structures• measure the efficiency of comparable routines/structures	

MODULE INF2180: PROGRAMMING 5 (continued)

Concept	Specific Learner Expectations	Notes
Algorithms/Classes (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	
Computer Language Syntax	<ul style="list-style-type: none"> • use constants, variables, data structures, operands • use reserved words, commands, statements, operators, subroutines, functions • use language-specific derived data types • input data using reserved words or predefined classes: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions/classes/objects/methods • edit/modify existing code • output/link program segments/programs using reserved words or predefined classes: <ul style="list-style-type: none"> – test/data/graphics. 	
Structured Computer Programming	<ul style="list-style-type: none"> • access appropriate computer language resource support • describe purpose/use of derived data types • describe the need for/advantages of derived data types • use derived data types in program segments • use/develop program segments that access elements of derived data types using member/non-member functions • use/develop program segments that develop new classes from base classes/add new data/methods to base classes/redefine the way in which inherited class member functions operate/inherit characteristics from multiple classes 	

MODULE INF2180: PROGRAMMING 5 (continued)

Concept	Specific Learner Expectations	Notes
Structured Computer Programming (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify situations that lend themselves to specific routines/structures • apply appropriate operations on derived data types in a program • produce algorithm/classes • produce output format • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF2190: TELECOMMUNICATIONS 1

Level: Intermediate

Theme: System Operations

Prerequisite: None

Course Description: Students learn how to select and use various wired and wireless telecommunication systems. By using the Internet, they investigate how communication principles, bandwidth, telecommunication infrastructure and wave spectrum affects telecommunication systems.

Course Parameters: Computer workstation, utility software, access to the Internet, support resources.

Supporting Course: INF1090 Information Highway 1

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">use selected communication systems, protocols and techniques to transfer messages and manage researchdescribe the principles of wired and wireless communication systems and how telecommunication systems are affected by bandwidth and wave spectrum	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">demonstrating effective and efficient use of at least two communication systems. <i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Systems Use (INF2190-1)</i> <i>Standard</i> <i>Rating of 2 for all applicable tasks</i>	20
	<ul style="list-style-type: none">a report or presentation that compares at least two wired and two wireless communication systems in terms of:<ul style="list-style-type: none">key componentstype of information that can be transferredbandwidth and typical userscomparative cost to install and usestage of development (status). <i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Systems Presentation/Report (INF2190-2)</i> <i>Standard</i> <i>Rating of 2 in each applicable task</i>	40
		20

COURSE INF2190: TELECOMMUNICATIONS 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> compare and contrast key elements of a telecommunication infrastructure 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> a report or presentation that compares two telecommunication systems in terms of the telecommunication infrastructures: <ul style="list-style-type: none"> – application/service provided – transmission system used – software – standards and protocols – personnel/expertise. <p><i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Infrastructure Presentation/Report (INF2190–3)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	30
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tool noted above</i></p>	Integrated throughout

MODULE INF2190: TELECOMMUNICATIONS 1 (continued)

Concept	Specific Learner Expectations	Notes
Evolution (Growth) of Telecommunications Systems	<p><i>The student should:</i></p> <ul style="list-style-type: none"> outline basic elements of a communication system describe the development of wired and wireless communications systems identify key components of wired and wireless telecommunication systems identify examples of how telecommunication systems are merging and connecting to improve service to various client groups. 	Input (sender), output (receiver), message, noise (filter).
Transmission Forms and Systems	<ul style="list-style-type: none"> use the computer to send and receive various types of information/data: (e.g., voice, data, documents, visuals, multimedia) identify and describe telecommunications transmission systems in terms of bandwidth and wave spectrum: <ul style="list-style-type: none"> wired (e.g., twisted pair telephone cable, coaxial cable, special data cables, fibre optics) wireless (radar/microwave, radio, satellite data links) digital versus analog describe various types of transmission systems: <ul style="list-style-type: none"> type of information that can be transmitted (voice, pictures) present installation base user cost. 	
Telecommunications Infrastructure	<ul style="list-style-type: none"> identify key elements of an effective telecommunications infrastructure: <ul style="list-style-type: none"> information and interactive applications/services (e.g. entertainment, education, cultural products, social services, business services) transmission systems (e.g., links with/among homes, businesses, governments and institutions) software applications (e.g., enable the operation of computers, manipulation of data, access to communications networks and their information) 	

MODULE INF2190: TELECOMMUNICATIONS 1 (continued)

Concept	Specific Learner Expectations	Notes
Telecommunications Infrastructure (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> – standards and protocols that allow access to, or secure the contents of, information and networks – people/expertise needed to create the information, technology, equipment, peripherals, software and services, to provide the information, construct the facilities and to educate others on its use and benefits • evaluate one or more telecommunications initiatives in terms of the key elements of an information technology infrastructure within one or more of the following areas: <ul style="list-style-type: none"> – personal (personal networks, interests, learning) – electronic commerce (allows consumers/businesses to interact; e.g., 1–800 numbers, EDI [electronic data interchange] used for data exchange) – health care (remote diagnostics, patient information sharing, training) – research – education and training (distance learning/module delivery) – libraries (on-line) – government services (federal/provincial) – information services; e.g., information about government services, reports – technology-based process/procedures, filing income tax electronically, electronic submissions of contract bids/tendering, teleconferencing – law enforcement services; e.g., international/national sharing of criminal data, teleconferenced parole hearings – labour force development: e.g., flexible, readily upgradeable training programs – environmental monitoring. 	

MODULE INF2190: TELECOMMUNICATIONS 1 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF2200: INFORMATION HIGHWAY 2

Level: Intermediate

Theme: Dynamic Environment

Prerequisite: None

Description: Students learn how to produce a web page for the Internet.

Parameters: Access to computer workstation and the Internet.

Supporting Course: INF1090 Information Highway 1

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">research characteristics of an effective web page	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">researching and providing examples of effective web pages showing:<ul style="list-style-type: none">– appropriateness to bandwidth available– a visually pleasing design– a suitably organized layout– appropriate links. <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 2 – Researching/Evaluating Tool (INF2200–1)</i> <i>Standard</i> <i>Rating of 2 for all applicable tasks</i>	20
<ul style="list-style-type: none">design, create and present a web page	<ul style="list-style-type: none">designing, creating and presenting a web page(s) with a consistent theme ensuring that:<ul style="list-style-type: none">– the page(s) should include text, graphics, links and anchors– use if made of accepted guidelines of layout and design. <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 2 – Designing/Creating, Documentation/Presentation (INF2200–1)</i> <i>Standard</i> <i>Rating of 2 for all applicable tasks</i>	50

COURSE INF2200: INFORMATION HIGHWAY 2 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> enhance web page to improve features and functions 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> presenting changes and describing reasons for change. <p><i>Assessment Tool</i> <i>Assessment Guide: Information Highway 2 – Enhancing, Documentation/Presentation INF2200–1</i></p> <p><i>Standard</i> <i>Rating of 2 for all applicable tasks</i></p>	20
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstration of appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>2 – Workstation Use</i> <i>3 – File Management</i> <i>2 – Time Management/Organization</i> <i>3 – Professionalism</i></p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observation of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Outcomes	Notes
Research and Evaluate	<p><i>The student should:</i></p> <ul style="list-style-type: none"> identify acceptable guidelines for creating web pages list sites that present guidelines for web pages evaluate a variety of web pages for use of accepted guidelines and ease of use access several of their effective sites explain the effective elements of the site being viewed 	Bookmarks.

MODULE INF2200: INFORMATION HIGHWAY 2 (continued)

Concept	Specific Learner Expectations	Notes
Research and Evaluate (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use a variety of search strategies to find effective sites • identify and organize resources • outline key purpose of web pages • identify key target audiences • describe and use bookmarks to organize research sources • access information on creating web pages. 	<p>E.g., Lycos, Excite, Web Crawler.</p> <p>Development Guide for www pages— http://www.cox.xmu.edu/workbench/wbstandards.htm.</p> <p>Additional programming skills can be developed using modules from the Programming theme.</p>
Design and Creation	<ul style="list-style-type: none"> • design a home page layout that incorporates the design elements of an effective web page • create a web page(s) using appropriate development sources • present pages that include text, graphics, links and anchors • test (using available browser) and debug (using available text editor). 	<p>The page may also include sound, animation, 3D graphics, etc.</p>
Documentation and Presentation	<ul style="list-style-type: none"> • properly cite all resources used • identify which areas of web page need monitoring/updating • present web page • provide a guide for new users of the web page. 	
Enhancement	<ul style="list-style-type: none"> • evaluate the impact of the web page • identify potential layout improvements • enhance a newly created or existing web page by: <ul style="list-style-type: none"> – updating data – editing web page (e.g., text, graphics) – adding/modifying special feature(s) • explain reasons for the changes • present enhanced web page. 	

MODULE INF2200: INFORMATION HIGHWAY 2 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation positions and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies when using the Internet• use related terminology to describe basic protocols, processes and tools.	

MODULE CURRICULUM AND ASSESSMENT STANDARDS:

SECTION F: ADVANCED LEVEL

The following pages define the curriculum and assessment standards for the advanced level of Information Processing.

Advanced level modules demand a higher level of expertise and help prepare students for entry into the workplace or a related post-secondary program.

Module INF3010:	Hardware/Software Analysis	F.3
Module INF3020:	Local Area Networks	F.7
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Module INF3120:	Software Integration 2	F.51
Module INF3130:	Multimedia Authoring 2	F.55
Module INF3140:	Expert Systems	F.59
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Module INF3180:	Telecommunications 2	F.75
Module INF3190:	Information Highway 3	F.79
Module INF3200:	Internet Services	F.83

COURSE INF3010: **HARDWARE/SOFTWARE ANALYSIS****Level:** Advanced**Theme:** Systems Operations**Prerequisite:** None**Course Description:** Students analyze, compare and evaluate hardware/software based on user requirements.**Course Parameters:** Access to two different computer systems, three task-specific software packages, supporting documentation.**Supporting Course:** INF2010 Workstation Operations**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">analyze and compare computer hardware and software systems	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">an analysis and comparison of two different computer systems (internal components, peripheral devices). <i>Assessment Tool</i> <i>Presentation/Reports: Analysis – Hardware (INF3010–1)</i> <i>Standard</i> <i>Rating of 2 in each applicable task</i>	30
	<ul style="list-style-type: none">an analysis and comparison of three task-specific software packages on the basis of:<ul style="list-style-type: none">hardware/operating system requirementsuser friendlinesstraining/learning effectivenessinstructional supportcommand/function parametersscreen/page characteristicsintended use/audienceintercompatibility with other software. <i>Assessment Tool</i> <i>Presentation/Reports: Analysis – Software (INF3010–1)</i> <i>Standard</i> <i>Rating of 2 in each applicable task</i>	30

COURSE INF3010: HARDWARE/SOFTWARE ANALYSIS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> prepare and present a report recommending hardware and software configurations that meet specified criteria 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> a report that responds to an identified need to provide or upgrade a computer system. The report will provide recommendations and rationale for particular hardware/software components (recommendation and reasons) that address: <ul style="list-style-type: none"> client needs information base implementation timelines financial costs workstation requirements inservice training support services warranties legal restrictions. <p><i>Assessment Tool</i> <i>Presentation/Reports: Recommending Hardware/Software (INF3010-1)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	30
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

MODULE INF3010: HARDWARE/SOFTWARE ANALYSIS (continued)

Concept	Specific Learner Expectations	Notes
Computer Hardware	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • prepare a report that responds to an identified need to provide or upgrade a computer system. The report will provide recommendations and rationale for a particular hardware/software components (recommendation and reasons) that addresses: <ul style="list-style-type: none"> – client needs – information base – implementation timelines – financial costs – workstation requirements – inservice training – support services – warranties – legal restrictions. 	
Computer Software	<ul style="list-style-type: none"> • assess and compare system software/firmware: <ul style="list-style-type: none"> – hardware specifications – operating system (icon/command, supervisor, etc.) – utility programs – language translators – compilers – interpreters • assess and compare application software (data, text, graphics): <ul style="list-style-type: none"> – application package, customized program – instructional/presentation focus – independent/integrated – windows – menus/icons – palettes/toolboxes – help screen • access support manuals/documentation/ resources: <ul style="list-style-type: none"> – follow instructions and explanations from help menus/software manuals, other resource support. 	

MODULE INF3010: HARDWARE/SOFTWARE ANALYSIS (continued)

Concept	Specific Learner Expectations	Notes
Analysis Presentation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify computer user needs, timelines • research potential alternatives • identify sources of information • demonstrate “hands-on” experience to compare/ evaluate hardware/software compatibility with identified user needs • make/support recommendation: <ul style="list-style-type: none"> – use appropriate industry-standard format – acceptable content/description – appropriate terminology. 	<p>Define user purpose/ requirements.</p> <p>Field test:</p> <ul style="list-style-type: none"> – input components – operating system – output components – other peripherals – software package(s). <p>Presentation could involve:</p> <ul style="list-style-type: none"> – demonstration – illustrated hard copy – multimedia – combination of above.
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF3020: LOCAL AREA NETWORKS

Level: Advanced

Theme: Systems Operations

Prerequisite: None

Course Description: Students learn about local area network (LAN) computer systems, including hardware and peripheral configurations, interface protocols and data transmission characteristics.

Course Parameters: Access to LAN (hardware, software, support resources).

Supporting Course: INF2010 Workstation Operations

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic LAN competence, as: <ul style="list-style-type: none"> a user/operator 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> using the LAN – demonstrating ability to: <ul style="list-style-type: none"> login, logout, use of password (if necessary) access information and programs on a LAN download/upload files or data on a LAN organize information on a LAN (e.g., directories, naming of files etc.). a report or presentation on how networks works including: <ul style="list-style-type: none"> LAN's purpose/capabilities network topologies hardware/software configurations for LANs. <p><i>Assessment Tool</i> <i>Assessment Guide: Local Area Networks Project</i> <i>– Using the Network and How Networks Work</i> <i>(INF3020-1)</i></p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	<p>10</p> <p>20</p>

COURSE INF3020: LOCAL AREA NETWORKS (continued):

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – a manager/technician 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • installation and troubleshooting of hardware/software on a network system. <ul style="list-style-type: none"> – install hardware and software – set up users, security rights, and map software – perform troubleshooting activities – design ways to protect the LAN. <p><i>Assessment Tool</i> <i>Assessment Guide: Local Area Networks Project</i> – Install and Troubleshoot (INF3020–1)</p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	20
	<ul style="list-style-type: none"> • prepare a proposal for maintaining a LAN that includes policy and procedures for: <ul style="list-style-type: none"> – network access and security – user access, rights, passwords – file/disk management – software and data upgrades. <p><i>Assessment Tool</i> <i>Assessment Guide: Local Area Networks Project</i> – Proposal for Maintaining a LAN (INF3020–1)</p> <p><i>Standard</i> <i>Rating of 2 in each applicable task</i></p>	40
	<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10

MODULE INF3020: LOCAL AREA NETWORKS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
LAN User	<p><i>The student should:</i></p> <ul style="list-style-type: none"> access LAN facilities and download/upload data/information: <ul style="list-style-type: none"> login, logoff accessing files/programs on all servers/drives organize data on servers and drives demonstrate ability to connect to different printers on the network. 	A network consists of computers and peripheral devices connected via communication lines so that information available on the file server can be accessed quickly and shared with multi-users within the parameters of the local area network system.
How Networks Work	<ul style="list-style-type: none"> identify the LAN purpose/capabilities: <ul style="list-style-type: none"> conditions under which a network is established the location of a network configuration compare network topologies such as: <ul style="list-style-type: none"> network protocol advantages of diskless terminals compare network configuration such as: <ul style="list-style-type: none"> evaluation of interface cards (NIC), servers, cables for compatibility with the operating system analyze various configurations: RAM requirements, hard drive, laser/compact disk, different processors, parallel processing, parallel hard drives compare different types of wiring and cabling designs. 	

MODULE INF3020: LOCAL AREA NETWORKS (continued)

Concept	Specific Learner Expectations	Notes
Installing a Network	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • configure/interface hardware: <ul style="list-style-type: none"> – arrange/connect peripheral devices – attach other component (e.g., printers) • install LAN software: <ul style="list-style-type: none"> – install/backup/restore files – create/use directories/folders – incorporate file protection • use defaults, supervisor, housekeeping, diagnostic, viral protection software: <ul style="list-style-type: none"> – set up users, security rights, and manage software – build in defence on the LAN (e.g., protect against viruses, user abuse or hacking) • perform troubleshooting: <ul style="list-style-type: none"> – diagnoses – remediation • demonstrate acceptable LAN performance <ul style="list-style-type: none"> – apply manager's responsibilities: <ul style="list-style-type: none"> • schedule access • provide assistance • monitor activities • recommend changes • identify issues/trends • use support manuals/documentation: <ul style="list-style-type: none"> – follow hardware/software and educational instructions. 	<p>Students can be contracted for specific duties and responsibilities (consistent with school/ jurisdiction policy and professional/ethical working environment expectations) to work on an existing LAN or have an opportunity to work on a dedicated file server configured specifically to accommodate learning experiences contained in this module.</p> <p>Another option might involve developing community partnerships and have students apprentice on available LAN facilities.</p>
LAN Policy and Procedures	<ul style="list-style-type: none"> • describe network policies: <ul style="list-style-type: none"> – establish policies for: <ul style="list-style-type: none"> • ethical use of software • network access and security • maintaining network data, software integrity • file management and disk management • file backup • job description for the network manager 	

MODULE INF3020: LOCAL AREA NETWORKS (continued)

Concept	Specific Learner Expectations	Notes
LAN Policy and Procedures (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> define procedures for file management: <ul style="list-style-type: none"> internal (floppies, files from server, sub-directories, physical drives, logical drives for copy protected and single user programs) public drives DOS drives search drives define the functions of network shell (copying selected drivers, linking programs, establishing connections for user and server, assigning user rights and names [password]). 	
Workstation Management	<ul style="list-style-type: none"> apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> good health and safety (posture, positioning of hardware and furniture) security for hardware, software, supplies and personal work demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> start-up procedures organization of work area closing procedures apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> plan activities organize data, information, resources consider alternatives evaluate activities/results use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3030: KEYBOARDING 4

Level: Advanced

Theme: Text/Data Input

Prerequisite: INF2040 Keyboarding 3

Module Description: Students develop their text and data keyboarding skills to entry-level occupational expectations.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate proficient keyboarding competence: <ul style="list-style-type: none"> – text entry at 50 words per minute (wpm) – numeric entry at 150 keystrokes per minute (kpm) – technique 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • three timed writings, each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding : <ul style="list-style-type: none"> – on alphabetic keys <ul style="list-style-type: none"> • three-minute duration • maximum one uncorrected error • SI 1.3 – 1.4 • 50 words per minute – on numeric keys: <ul style="list-style-type: none"> • one-minute duration • maximum one uncorrected error • 150 numeric keystrokes a minute on 1 to 5 digit numbers – observations over the last quarter of the learning period, during timings and drill work. <p><i>Assessment Tool</i> <i>Assessment Checklist: Text–Data Entry (INFTDENT)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Eye Focus 3 – Keystroking 3 – Service Keys 3 – Body Position</p> 	<p>50</p> <p>10</p> <p>30</p>

MODULE INF3030: KEYBOARDING 4 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate increasingly rapid, accurate touch keystroking on straight and draft (edited) copy of: <ul style="list-style-type: none"> – alphanumeric keys – all punctuation keys – service keys (enter, shift, delete, backspace, tab) • use function and cursor movement key efficiently • demonstrate correct keystroking technique: <ul style="list-style-type: none"> – enter text using designated fingers – maintain home-row anchor position – demonstrate correct posture (hands, arms, body) 	<p>Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (.5 to one minute) with straight copy text of varying SI. (1.2–1.6).</p> <p>Draft copy should include basic spacing, spelling, punctuation and spacing errors (no more than one error per every 10 words).</p>

MODULE INF3030: KEYBOARDING 4 (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • proofread and edit text (screen and hard copy) to ensure text is without error • analyze errors and initiate remediation as appropriate for: <ul style="list-style-type: none"> – spelling, shifting, punctuation and spacing errors – transposed, repeated, omitted letters. 	
Data Entry	<ul style="list-style-type: none"> • demonstrate rapid, accurate data entry on keyboard number pad: <ul style="list-style-type: none"> – using designated fingers – maintaining anchor position. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3040:	KEYBOARDING 5
Level:	Advanced
Theme:	Text/Data Input
Prerequisite:	INF3030 Keyboarding 4
Module Description:	Students increase their occupational-level keyboarding competence of text, data and function/service keys, using straight copy and edited material.

Prerequisite: INF3030 Keyboarding 4

Module Description: Students increase their occupational-level keyboarding competence of text, data and function/service keys, using straight copy and edited material.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate proficient keyboarding competence: <ul style="list-style-type: none"> – text entry at 60 words per minute (wpm) – numeric entry at 180 keystrokes per minute (kpm) – technique 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • three timed writings, each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding: <ul style="list-style-type: none"> – on alphabetic keys: <ul style="list-style-type: none"> • three-minute duration • maximum one uncorrected error • $SI \geq 1.35$ • 60 words per minute – on numeric keys: <ul style="list-style-type: none"> • one-minute duration • maximum one uncorrected error • 180 numeric keystrokes a minute on 1 to 6 digit numbers – observations over the last quarter of the learning period, during timings and drill work. <p><i>Assessment Tool</i> <i>Assessment Checklist: Text–Data Entry (INFTDENT)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Eye Focus 3 – Keystroking 3 – Service Keys 3 – Body Position</p> 	<p>50</p> <p>20</p> <p>20</p>

MODULE INF3040: KEYBOARDING 5 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Text Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • demonstrate increasingly rapid, accurate touch keystroking on straight and draft copy (edited) of: <ul style="list-style-type: none"> – alphanumeric keys – all punctuation keys – service keys • use function and cursor movement keys efficiently • demonstrate correct keystroking technique: <ul style="list-style-type: none"> – enter text using designated fingers – maintain home-row anchor position – demonstrate correct posture (hands, arms, body) • proofread and edit text (screen and hard copy) to ensure text is without error 	<p>Enter, shift, delete, backspace, tab.</p> <p>Develop speed and accuracy at the phrase, sentence and short paragraph level using short, repetitive timings (.5 to one minute) with straight copy text of varying SI (1.2–1.6).</p> <p>Draft copy should include basic spacing, spelling, punctuation and spacing errors (no more than one error per every 10 words).</p>

MODULE INF3040: KEYBOARDING 5 (continued)

Concept	Specific Learner Expectations	Notes
Text Entry (continued)	<i>The student should:</i> <ul style="list-style-type: none">• analyze errors and initiate remediation as appropriate for:<ul style="list-style-type: none">– spelling, shifting, punctuation and spacing errors– transposed, repeated, omitted letters.	
Data Entry	<ul style="list-style-type: none">• demonstrate rapid, accurate data entry on keyboard number pad:<ul style="list-style-type: none">– using designated fingers– maintaining anchor position.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3050: KEYBOARDING 6

Level: Advanced

Theme: Text/Data Input

Prerequisite: INF3040 Keyboarding 5

Module Description: Students enhance their occupational-level keyboarding competence of all keystroke functions, using unedited, edited and straight copy material.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate proficient keyboarding competence:<ul style="list-style-type: none">– text entry at 70 words per minute (wpm)– numeric entry at 200 keystrokes per minute (kpm)– technique	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• three timed writings each from different straight copy material, over a period of no more than five consecutive class periods, which demonstrates proper touch keyboarding :<ul style="list-style-type: none">– on alphabetic keys:<ul style="list-style-type: none">• three-minute duration• maximum one uncorrected error• $SI \geq 1.35$• 70 words per minute– on numeric keys:<ul style="list-style-type: none">• one-minute duration• maximum one uncorrected error• 200 numeric keystrokes a minute on 1 to 6 digit numbers– observations over the last quarter of the learning period, during timings and drill work. <p><i>Assessment Tool</i> <i>Assessment Checklist: Text–Data Entry (INFTDENT)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Eye Focus 3 – Keystroking 3 – Service Keys 3 – Body Position</p>	<p>50</p> <p>20</p> <p>20</p>

MODULE INF3050: KEYBOARDING 6 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Text/Data Entry	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use formatted, straight-copy material as well as unformatted rough-draft material • touch-keystroke alphabetic, numeric, punctuation, service keys • consistently apply: <ul style="list-style-type: none"> – correct finger/key placement – healthful body position – acceptable eye/copy focus • use numeric keys and/or number pad. 	<p>A few five-minute timed attempts can be used to prepare for workplace expectations if deemed appropriate.</p>

MODULE INF3050: KEYBOARDING 6 (continued)

Concept	Specific Learner Expectations	Notes
Proofreading/Editing	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • proofread/edit screen/documents • analyze errors/determine remediation • use spell check features • minimize errors: spelling, keystroking, punctuation, spacing, transposition, repeated, omitted • use appropriate commands, functions • format/output. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3060: WORD PROCESSING 3

Level: Advanced

Theme: Productivity Software

Prerequisites: INF2030 Keyboarding 2
INF2050 Word Processing 2

Module Description: Students develop occupational-level competence in the use of word processing software commands and functions to produce mailable reports, correspondence and tables, including the importing and merging of text, data and graphics.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Supporting Module: INF2040 Keyboarding 3

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none">• demonstrate correct use of word processing software functions, by producing mailable, properly formatted copy of:<ul style="list-style-type: none">– a multipage report with a title page, table of contents, bibliography and appendices	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none">• producing mailable documents, based on formatted and unformatted sources, focusing on advanced functions and improved use of previously learned software functions through business applications including a collection of:<ul style="list-style-type: none">– a multipage report/publication containing:<ul style="list-style-type: none">• macros/templates/autotext for a variety of formats• title pages, table of contents• headings (sub, side and/or paragraph)• references/bibliography• diagrams using draw features and text boxes• desktop publishing features of word processor• display paragraphs (e.g., enumerations, charts, graphs)• graphics, tables• merge with spreadsheet/database information• appendix, index. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i> <i>Standard</i> <i>Rating of 3 in the production of mailable documents (no errors in text and well formatted)</i></p>	30

MODULE INF3060: WORD PROCESSING 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> – two-page letters in designated letter styles that incorporate special formats 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> – two-page letters requiring at least two of the following functions: <ul style="list-style-type: none"> • letterhead (use of templates or autotext) • use of more detailed macros • inserting table, diagram, spreadsheet or chart • merging names/addresses) • enumeration • graphics. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i></p> <p><i>Standard</i> <i>Rating of 3 in the production of mailable documents (no errors in text and well formatted)</i></p>	25
<ul style="list-style-type: none"> – memorandums 	<ul style="list-style-type: none"> – memos consisting of: <ul style="list-style-type: none"> • macros to format headings • reference notations. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i></p> <p><i>Standard</i> <i>Rating of 3 in the production of mailable documents (no errors in text and well formatted)</i></p>	10
<ul style="list-style-type: none"> – tables 	<ul style="list-style-type: none"> – multicolumn tables containing: <ul style="list-style-type: none"> • graphics • merge • graph • sorted • parallel columns • column heads • footnotes • borders • shading • text boxes. <p><i>Assessment Tool</i> <i>Assessment Checklist: Word Processing (INFWP)</i></p> <p><i>Standard</i> <i>Rating of 3 in the production of mailable documents (no errors in text and well formatted)</i></p>	25

MODULE INF3060: WORD PROCESSING 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • compare at least two word processing software packages: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure • demonstrate improved use of previously learned software functions • use help functions and references as appropriate • demonstrate use of advanced software functions such as: <ul style="list-style-type: none"> – use desktop publishing features – use draw features (when available) – insert graphics (import and design) – establish and use libraries, macros 	<p>Students should incorporate desktop publishing features to improve document readability; e.g.:</p> <ul style="list-style-type: none"> – layout/spacing – font type, style, size.

MODULE INF3060: WORD PROCESSING 3 (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> – design and use more detailed macros – merge and sort text – customizing features (e.g., toolbar and menus) • move through document(s) efficiently by using appropriate cursor movement, tools/commands. 	
Document Production	<ul style="list-style-type: none"> • demonstrate appropriate key commands to: <ul style="list-style-type: none"> – save files (alternative formats) – print documents • replicate, convert and append files • print documents (alternative formats) • print templates • demonstrate appropriate key commands to produce the following documents in mailable form: <ul style="list-style-type: none"> – reports: <ul style="list-style-type: none"> • headings/subheading • references (footnotes, end notes, bibliography) • headers/footers • title page • table of contents • indexes – personal and business letters: <ul style="list-style-type: none"> • letter parts (date, inside address, salutations, complimentary closing, name/title, references) • letter styles • subject/attention lines • special notations – tables (single/multicolumn): <ul style="list-style-type: none"> • headings • borders/shading • rulers/tabs • sorted. 	<p>Use macros as appropriate.</p> <p>Mailable form: document is accurate and correctly formatted.</p> <p>Students should be familiar with various document styles, including:</p> <p>Reports:</p> <ul style="list-style-type: none"> – research reports/papers – manuscripts – articles – brochures – position papers <p>Correspondence:</p> <ul style="list-style-type: none"> – full block – semi-block – set customized styles used by businesses in the community.

MODULE INF3060: WORD PROCESSING 3 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3070: ELECTRONIC PUBLISHING 2

Level: Advanced

Theme: Productivity Software

Prerequisite: INF2060 Electronic Publishing 1

Module Description: Students use the functions and commands of electronic/desktop publishing software as they integrate text composing, editing, typesetting, graphics generation and page layout functions to create customized, professional, quality documents.

Module Parameters: Computer workstation, disk, electronic/desktop publishing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate electronic publishing software competence, by:<ul style="list-style-type: none">– creating a customized document effectively incorporating text and graphics to communicate an idea or activity– applying software make-up tools and commands	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• production of accurate, well-designed multipage original publications focusing on advanced software functions and continued use of previously learned software functions and layout principles including:<ul style="list-style-type: none">– multicolumn– text (body and display)– follow copyright laws– layout principles such as optical centre, balance, white space, columns, Z pattern, contrast, rhythm, unity– additional layout principles including colour, proportion, golden section, bleed and trim• advanced software functions consisting of:<ul style="list-style-type: none">– style sheet, page masters or templates– graphics and/or artwork (graphic tools, scanning, clip art files)– style palette (captions, headlines, body, text)– story editor– publication enhancements (e.g., pull quotes, sidebars and footnotes, mastheads and banners, two-page spread graphics)– print composite and colour separation. <i>Assessment Tool</i> <i>Assessment Checklist: Electronic Publishing Software Functions (INFEPSF)</i> <i>Assessment Checklist: Electronic Publishing Document Production (INFEPDOC)</i> <i>Standard</i> <i>Rating of 3 in the production of accurate, well-designed publications</i>	<div>60</div> <div>30</div>

MODULE INF3070: ELECTRONIC PUBLISHING 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Software Functions and Applications	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe key features of the desktop publishing software package: <ul style="list-style-type: none"> – capabilities – system requirements – platform options – command structure • identify data input sources 	<p>Research a variety of desktop publishing applications.</p> <p>Sources of graphics</p> <ul style="list-style-type: none"> – clip art – art creation – mechanical drawing animation.

MODULE INF3070: ELECTRONIC PUBLISHING 2 (continued)

Concept	Specific Learner Expectations	Notes
Software Functions and Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate appropriate key commands to: <ul style="list-style-type: none"> open/create files/templates key, load, import, scan text and graphic files name files import ASCII file conversion format text/graphics proofread, edit text, position graphics address the factors that affect desktop publishing layout: <ul style="list-style-type: none"> identify audience, message determine budget, resource, time constraints establish document layout and specifications create/import graphics elements: <ul style="list-style-type: none"> clip art art creation mechanical drawing animation merge graphics and text use story editor: <ul style="list-style-type: none"> back publications index entry/format page/cross reference character codes use graphics: <ul style="list-style-type: none"> gray scale scans independent versus inline image control lightness/contrast settings multicolour overlays edits create page format(s): <ul style="list-style-type: none"> import/export and link data charts to other applications plan/create customized desktop templates move through document(s) efficiently by using appropriate cursor movement tools/commands create objects using special effects use help functions and references as appropriate. 	<p>Select various desktop publishing applications that combine text and graphics, and incorporate desktop publishing features:</p> <ul style="list-style-type: none"> personal documents class assignments school stationery, newsletter, newspaper, yearbook signs, announcements invitations advertisements brochures (single-, folded-page) reports, manuals, booklets community activities customer documents business applications. <p>Prepare text, illustrations, graphics.</p> <p>Create camera-ready page layouts.</p> <p>Adhere to publishing industry standards.</p>

MODULE INF3070: ELECTRONIC PUBLISHING 2 (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none">• demonstrate appropriate key commands to:<ul style="list-style-type: none">– save files– print documents– printer drivers– bitmapped– postscript/non-postscript• demonstrate appropriate key commands to produce quality desktop publishing documents.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

COURSE INF3080: INFORMATION MANAGEMENT TOOLS

Level: Advanced

Theme: Productivity Software

Prerequisite: None

Course Description: Students develop competence in using information management systems software, such as project management, schedules and planners for either personal or workplace applications.

Course Parameters: Computer workstation, disk, information management system software, support resources.

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate the ability to use information management software, to:<ul style="list-style-type: none">plan projects, including setting goals, timelines and determining resource needsmonitor projects, including time and resource managementadjust project files, as appropriateprepare project reportsdescribe the features of the information management software used	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">an information management project using project management software to:<ul style="list-style-type: none">plan an identified project (business or personal)monitor the projectmake adjustments where appropriateprepare project reports. <i>Assessment Tool</i> <i>Assessment Guide: Information Management Project Planning/Monitoring (INF3080-1)</i> <i>Standard</i> <i>Rating of 3 in each applicable task</i>	70
	<ul style="list-style-type: none">present the information management tool to others by demonstrating and discussing its capabilities. <i>Assessment Tool</i> <i>Assessment Guide: Information Management Project Presenting (INF3080-2)</i> <i>Standard</i> <i>Rating of 3 in each applicable task</i>	20

COURSE INF3080: INFORMATION MANAGEMENT TOOLS (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Planning	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • organize relevant data; e.g., building a house, putting on a play, building a multimedia presentation • define basic project information <ul style="list-style-type: none"> – identify all key tasks – link tasks where appropriate – assign task duration • organize tasks into an outline and detail each sub-task: <ul style="list-style-type: none"> – view different levels of task detail (expand/collapse) – set milestones – create a base calendar • create resources lists: <ul style="list-style-type: none"> – enter cost information – assign resources – apply appropriate constraints. 	

MODULE INF3080: INFORMATION MANAGEMENT TOOLS (continued)

Concept	Specific Learner Expectations	Notes
Monitoring	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify critical issues • resolve time restrictions • resolve resource constraints • sort and filter data • generate project reports. 	
Presentation	<ul style="list-style-type: none"> • demonstrate the information management tool to others • describe the capabilities of the tool • describe how a person or business can benefit from the use of the management tool. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3090: SOFTWARE INTEGRATION 3

Level: Advanced

Theme: Applied Processing

Prerequisite: INF3120 Software Integration 2

Module Description: Students develop high production rates as they process documents from unedited and unformatted copy, using numerous functions/commands to create, revise, format and print a wide range of mailable copy.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate competence in producing multipage documents and presentations that integrate word processing, spreadsheet, database and graphics files/documents from:<ul style="list-style-type: none">– unedited copy– unformatted copy	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">create multipage (more than 10 pages) document(s) (enter, edit, format, print) from unedited, unformatted sources that integrate and link (i.e., OLE/subscribe/publish) data text and graphics. Documents should make use of the following types of software: word processing, spreadsheet, database, graphicsedit multipage documents created to produce a presentation that includes word processing, spreadsheet, database and graphics software. <i>Assessment Tool</i> <i>Assessment Checklist: Software Integration 1, 2 and 3 (INFINTEG)</i> <i>Standard</i> <i>Rating of 3 in the production of accurate and well-formatted documents</i>	<div>70</div> <div>20</div>

MODULE INF3090: SOFTWARE INTEGRATION 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the purpose of the document: <ul style="list-style-type: none"> – target audience – single/multiple/presentation copy • apply word processing, database, spreadsheet, paint/draw commands as appropriate to import, create, merge and link spreadsheet, database and graphics documents with a word processing file • manipulate word processing, database, spreadsheet, graphics software to produce mailable documents from drafts: <ul style="list-style-type: none"> – edited, unformatted – unedited, unformatted – edited, formatted • follow instructions to customize/personalize existing text and data files. 	<p>Applications should include object linking/embedding (OLE) of SS and DB into WP.</p> <p>Potential sources of documents:</p> <ul style="list-style-type: none"> – simulations – in-baskets – projects.

MODULE INF3090: SOFTWARE INTEGRATION 3 (continued)

Concept	Specific Learner Expectations	Notes
Document Editing	<p><i>The student should:</i></p> <ul style="list-style-type: none">• load, redesign, reformat, or modify existing templates and files containing information from word processing, database, spreadsheet and graphics files to prepare a presentation• revise documents to be aesthetically pleasing and well-formatted.• save and print documents.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3100:	SPECIALIZATION 1
Level:	Advanced
Theme:	Applied Processing
Prerequisites:	INF2030 Keyboarding 2 INF2050 Word Processing 2 INF2120 Software Integration 1
Module Description:	Students specialize in document preparation, terminology application and associated office routine expectations in a specific focus area, such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

Prerequisites: INF2030 Keyboarding 2
INF2050 Word Processing 2
INF2120 Software Integration 1

Module Description: Students specialize in document preparation, terminology application and associated office routine expectations in a specific focus area, such as a medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate basic competence in a specific focus area, by: <ul style="list-style-type: none"> – using appropriate terminology – preparing and producing documents – exhibiting professional attributes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • appropriate use of terminology in the area of specialization • collection of documents related to the area of specialization consisting of: <ul style="list-style-type: none"> – prioritizing tasks and producing documents using office routines, practices and communication skills related to the area of specialization – editing documents. <p><i>Assessment Tool</i> <i>Assessment Checklist: Specialization 1 & 2 (INFSPEC)</i></p> <p><i>Standard</i> <i>Rating of 2 in all the preparation of accurate, well-formatted specialized documents</i></p>	<p>10</p> <p>60</p> <p>20</p>
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	<p>10</p>

MODULE INF3100: SPECIALIZATION 1 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Specialization Focus	<p><i>The student should:</i></p> <ul style="list-style-type: none"> identify/research focus area: <ul style="list-style-type: none"> work environment stakeholder groups routines and practices internal/external characters/parameters existing community offices specialized documents describe workplace expectations: <ul style="list-style-type: none"> personnel/duties office layout facilities/equipment resource support define and use specialized terminology related to area of specialization 	<p>The ability to efficiently apply specific terminology and documentation knowledge in a recognized professional, industrial or business workplace setting enhances opportunities for entry-level employment.</p> <p>This module could consist of a simulation, off-campus experience, student-initiated project, in-basket exercises, or integrated problem requiring specific document preparation, terminology application and workplace environment activities.</p>
Document Production	<ul style="list-style-type: none"> produce and edit a variety of documents in the area of specialization use sample(s) or templates of specialized documents to design well-formatted documents 	

MODULE INF3100: SPECIALIZATION 1 (continued)

Concept	Specific Learner Expectations	Notes
Document Production (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • establish timelines, priorities, required resources • format/revise output document(s) for internal/external use: <ul style="list-style-type: none"> – verify content, format and instructions – check reports, forms, documents for mailability – prepare backup/records. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3110: SPECIALIZATION 2

Level: Advanced

Theme: Applied Processing

Prerequisites: INF3100 Specialization 1
INF3120 Software Integration 2

Module Description: Students develop workplace competence in a specific focus area, such as medical, legal, petroleum, real estate, insurance, travel/tourism, forestry or agricultural environment, by creating and completing appropriate documents that employ specialized communication skills and conform to workplace expectations and time constraints.

Module Parameters: Computer workstation, disk, word processing software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • demonstrate entry-level workplace competence in a specific focus area, by: <ul style="list-style-type: none"> – using appropriate terminology – preparing and producing documents – exhibiting professional attributes 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • appropriate use of terminology in the area of specialization • collection of documents related to the area of specialization consisting of: <ul style="list-style-type: none"> – preparation of mailable specialized documents under time constraints appropriate for complexity of task based on unformatted sources – a minimum expected keyboarding competency of 30 wpm based on Keyboarding 2 competency – prioritizing tasks and producing documents – using office routines, practices and communication skills related to the area of specialization – editing documents. <p><i>Assessment Tool</i> <i>Assessment Checklist: Specialization 1 & 2 (INFSPEC)</i></p> <p><i>Standard</i> <i>Rating of 3 in the preparation of accurate, well-formatted specialized documents under time constraints</i></p>	<p>10</p> <p>60</p> <p>20</p>

MODULE INF3110: SPECIALIZATION 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Specialization Focus	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • enhance knowledge of focus area: <ul style="list-style-type: none"> – work environment – stakeholder groups – routines and practices – internal/external characteristics/parameters – existing community offices – specialized documents • focus on workplace expectations: <ul style="list-style-type: none"> – personnel/duties – office layout – facilities/equipment – resource support • improve use of specialized terminology related to area of specialization. 	<p>The demonstration of competence in a specific focus-area broadens opportunities for employment in a professional, industrial or business environment.</p>

MODULE INF3110: SPECIALIZATION 2 (continued)

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • produce and edit a variety of documents in the area of specialization under time constraints • use sample(s) or templates of specialized documents to design well-formatted documents • create timelines, priorities, required resources • format/revise output document(s) for internal/external use: <ul style="list-style-type: none"> – verify content, format and instructions – check reports, forms, documents for mailability – prepare backup/records. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3120: SOFTWARE INTEGRATION 2

Level: Advanced

Theme: Applied Processing

Prerequisite: INF2120 Software Integration 1

Module Description: Students expand their document production skills to workplace standards. Documents could require the importing and integration of word processing, spreadsheet, graphics and database files.

Module Parameters: Access to word processing, spreadsheet, database, graphics software.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate competence in producing documents that integrate word processing, spreadsheet, database and graphics files/documents from: <ul style="list-style-type: none"> unedited copy unformatted copy 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> create four- to ten-page document(s) (enter, format, edit and print) from unedited, unformatted sources that integrate and link (i.e., OLE/subscribe/publish) data, text, and graphics. Documents should make use of at least three of the following types of software: <ul style="list-style-type: none"> word processing spreadsheet database spreadsheets including chart graphing graphics (paint and draw, clip art files) editing to produce error-free, well-formatted document(s). <p><i>Assessment Tools</i></p> <p><i>Assessment Checklist: Software Integration 1, 2 and 3 (INFINTEG)</i></p> <p><i>Standard</i></p> <p><i>Rating of 2 in the production of accurate and well-formatted documents</i></p>	<p>70</p> <p>20</p>

MODULE INF3120: SOFTWARE INTEGRATION 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Document Production	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the purpose of the document: <ul style="list-style-type: none"> – target audience – single/multiple/presentation copy • apply word processing, database, spreadsheet, paint/draw commands as appropriate to import, merge and link spreadsheet, database and graphic documents with word processing file • manipulate word processing, database, spreadsheet, graphics software to produce mailable documents from drafts: <ul style="list-style-type: none"> – edited and unedited, unformatted – edited, formatted • follow instructions to customize/personalize existing text and data files. 	<p>Applications should include object linking/embedding (OLE) of SS and DB into WP.</p> <p>Potential sources of documents:</p> <ul style="list-style-type: none"> – simulations – in-baskets – projects.

MODULE INF3120: SOFTWARE INTEGRATION 2 (continued)

Concept	Specific Learner Expectations	Notes
Document Editing	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • load, redesign, reformat, or modify existing templates and files containing information from database, spreadsheet, presentation graphics files • revise documents to be aesthetically pleasing and well formatted • save and print documents. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3130: MULTIMEDIA AUTHORIZING 2

Level: Advanced

Theme: Productivity Software

Prerequisite: INF2130 Multimedia Authoring 1

Module Description: Students learn to use a multimedia file or multimedia authoring software based on digitized input of text, video and audio clips.

Module Parameters: Computer workstation, multimedia software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">demonstrate multimedia authoring software and digitized input competence, by:<ul style="list-style-type: none">capturing text/ images, video and audio information from external sources, and inputting it on a computerusing captured text/images, video and audio to create a multimedia presentationapply, consistently, appropriate workstation routines	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">planning, producing, editing and testing of a multimedia presentation that includes original text, graphics, video, audio and animation with the individual components supporting a common theme:<ul style="list-style-type: none">create and import textual materialcreate and import graphicscreate and import video clipscreate and import audio clipscreate and import animation clips. <i>Assessment Tool</i> <i>Assessment Checklist: Multimedia Software Functions (INFMMSF)</i> <i>Assessment Checklist: Multimedia Productions and Presentations (INFMMDOC)</i> <i>Standard</i> <i>Rating of 2</i> <ul style="list-style-type: none">demonstrate appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> <i>3 – Workstation Use</i> <i>3 – File Management</i> <i>3 – Time Management/Organization</i> <i>3 – Professionalism</i>	<div>20</div> <div>70</div> <div>10</div>

MODULE INF3130: MULTIMEDIA AUTHORIZING 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Multimedia Software Authoring Skill	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate ability to use identified multimedia software in the planning of a presentation that includes creating and importing of: <ul style="list-style-type: none"> text graphics video sound animation import text/images, video and audio information manipulate text/images and audio information as required. 	
Multimedia Authoring Application	<ul style="list-style-type: none"> plan steps in preparing a multimedia presentation prepare a storyboard, outlining the presentation's content and special effects for a particular theme make decisions regarding text, sound, graphics, video and animation select and use appropriate tools, commands and devises apply software commands 	

MODULE INF3130: MULTIMEDIA AUTHORIZING 2 (continued)

Concept	Specific Learner Expectations	Notes
Multimedia Authoring Application (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • create a customized multimedia authored file/movie (key, import, digitize text, video, audio clips) using software program(s) and external sources by doing all or some of the following: <ul style="list-style-type: none"> – establish windows/screen parameters and characteristics – determine clip considerations – open/import/digitize source clips: <ul style="list-style-type: none"> • still-images • animation • audio clips • window files • special files – edit windows/screens using: <ul style="list-style-type: none"> • tool kit functions • command options – edit clips (trim/split/join/align) • preview segments, tracks, sequence • print/export file; storyboard the window/screen; enhance with visual transitions; apply digital filters; create titles/graphics; superimpose clips • run uncompiled sequence; play compiled movie (videotape recording, edit decision list). 	<p>Multimedia software uses the power of the computer to create presentations that integrate text information, visual images and sound tracks. Sources of input include both software-resident clips as well as externally digitized images from videotape, full-motion video sequences, music segments, computer-generated animation, CD/laser discs and other graphics elements including still images, paintings or photographs.</p>

MODULE INF3130: MULTIMEDIA AUTHORING 2 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3140: EXPERT SYSTEMS

Level: Advanced

Theme: Dynamic Environment

Prerequisites: INF1070 Hypermedia Tools
INF3130 Multimedia Authoring 2

Module Description: Students acquire knowledge of expert systems, such as artificial intelligence and virtual reality. They gain competence, by developing or modifying programs that incorporate computer-controlled environments and multimedia interactive activities and applications.

Module Parameters: Computer workstation, software, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">develop an information portfolio on expert systems and other advanced technologiesprogram an application, using one of these systems and present the results	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">an artificial intelligence project focusing on expert systems consisting of:<ul style="list-style-type: none">research of an expert system, including what it is, its effects on society and a description of how it is used	35
	<ul style="list-style-type: none">use of an appropriate programming language/artificial intelligence software package to:<ul style="list-style-type: none">solve a specific problem ormodify an existing application	35
	<ul style="list-style-type: none">explain/demonstrate expert system principles and application(s).	20
	<i>Assessment Tools</i> <i>Assessment Guide: Artificial Intelligence (AI) Project (INF3140-1)</i> <i>Artificial Intelligence (AI) Sample Project (INF3140-2)</i> <i>Standard</i> <i>Rating of 2 in all applicable tasks</i>	

MODULE INF3140: EXPERT SYSTEMS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
Artificial Intelligence/ Virtual Reality Application	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify software/application(s): <ul style="list-style-type: none"> – simulations, telerobotics, telecollaboration, telepresence systems, architecture, audio/airline industry, medicine, physical fitness and entertainment • plan/create/modify a program and/or activity according to provided instructions • collect required support resources. 	
Expert Systems Programming and Software	<ul style="list-style-type: none"> • apply expert system software commands/instructions/code: <ul style="list-style-type: none"> – load/create customize/modify expert systems software templates, stacks, files or simulation application that supports an artificial intelligence and/or virtual reality project or scratch program/modify existing program(s) 	

MODULE INF3140: EXPERT SYSTEMS (continued)

Concept	Specific Learner Expectations	Notes
Expert Systems Programming and Software (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> input data: <ul style="list-style-type: none"> design/define project parameters: <ul style="list-style-type: none"> flowchart sequence enter data: <ul style="list-style-type: none"> key, load data create/import/scan graphic elements access/manipulate data/information: <ul style="list-style-type: none"> create background edit/modify/update data/information use resident commands link file(s) incorporate text (alphabetic, numeric), graphics, motion, sound demonstrate artificial intelligence/virtual reality/other high technology capability output expert system activities <ul style="list-style-type: none"> display/print/export <ul style="list-style-type: none"> artificial intelligence file virtual reality file. 	
Workstation Management	<ul style="list-style-type: none"> apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> good health and safety (posture, positioning of hardware and furniture) security for hardware, software, supplies and personal work demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> start-up procedures organization of work area closing procedures apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> plan activities organize data, information, resources consider alternatives evaluate activities/results use related terminology to describe basic processes, procedures and tools. 	

COURSE INF3150: PROGRAMMING APPLICATION 1

Level: Advanced

Theme: Programming

Prerequisite: None

Course Description: Students create programs that use external files.

Course Parameters: Computer workstation, programming language software, language code manual, support resources.

Supporting Courses: INF2150 Programming 2; INF2160 Programming 3; INF2170 Programming 4; INF2180 Programming 5

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> create an algorithm to solve problems requiring an external data file 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> distinguishing programming problems requiring the use of external data files 	30
<ul style="list-style-type: none"> develop programs that create, retrieve, append and modify text/nontext files 	<ul style="list-style-type: none"> distinguishing programming problems requiring text versus nontext files creating and revising programs that will create, retrieve, append and modify external data files creating and revising programs that will sequentially/randomly access data from external data files. <p><i>Assessment Tool</i> <i>Assessment Checklist: Advanced Programming Applications (INFPRGM3)</i> <i>Programming: Sample Assignment: PA1 (INFPSAM3)</i></p> <p><i>Standard</i> <i>Rating of 3 in the creation and presentation of programs</i></p>	60
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> <i>3 – Workstation Use</i> <i>3 – File Management</i> <i>3 – Time Management/Organization</i> <i>3 – Professionalism</i></p>	10

COURSE INF3150: PROGRAMMING APPLICATION 1 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> modify existing/develop new algorithms/classes identify/describe the problem list each step required to solve the problem/list the required components of the data structure demonstrate the appropriate logic/data components required to achieve the solution demonstrate the appropriate methods of creating and accessing data stored in external files compare characteristics and use of text and binary files select appropriate file structure based on problem characteristics apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks.</p>
Computer Language Syntax	<ul style="list-style-type: none"> use constants, variables, data structures, operands use reserved words, commands, statements, operators, subroutines, functions use language-specific derived data types 	<p>See notes from Programming 5, if available.</p>

MODULE INF3150: PROGRAMMING APPLICATION 1 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• input data using reserved words or predefined classes:<ul style="list-style-type: none">– embed/read from external files/enter data– create/assign values/operations to derived data types– open and access contents of text and binary files sequentially/randomly• process data:<ul style="list-style-type: none">– calculations/manipulations/decision control/branching/looping/subroutines/functions/classes/objects/methods/files• edit/modify existing code• output/link program segments/programs using reserved words or predefined classes:<ul style="list-style-type: none">– text/data/graphics– create and access text and binary files.	
Structure Computer Programming Applications	<ul style="list-style-type: none">• access appropriate computer language resource support• describe the purpose/use of text and binary files• describe the need for/advantages of text and binary files• use/develop program segments that create/open/write to/read from/append to text and binary files• use/develop program segments that access the contents of external files sequentially and randomly• use/develop program segments that access multiple files• identify situations that lend themselves to specific types of file structures• apply appropriate file structures and operations in a program• produce algorithms/classes	

MODULE INF3150: PROGRAMMING APPLICATION 1 (continued)

Concept	Specific Learner Expectations	Notes
Structure Computer Programming Applications (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • produce output format/file structure • key/code the instructions • test run program • debug/edit program • execute program • document program • assess activities/results. 	
Workstation Management	<ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

MODULE INF3160: PROGRAMMING APPLICATION 2

Level: Advanced

Theme: Programming

Prerequisite: INF3150 Programming Application 1

Module Description: Students create a program, using a second programming language.

Module Parameters: Computer workstation, programming language, language code manual, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • employ existing algorithms to solve programming problems 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • formulating an algorithm for the solution of the problem • distinguishing generic characteristics of problems and design algorithmic solutions independent of programming language 	20
<ul style="list-style-type: none"> • create programs to solve problems in a second programming language that include: <ul style="list-style-type: none"> – input/output – mathematical functions – looping and branching – subprogram structures 	<ul style="list-style-type: none"> • constructing programs that: <ul style="list-style-type: none"> – use predefined language specific variables – assign values to variables within the program and via the keyboard – use language-specific commands to perform iterative and decision control operations (relational and logic) – use language-specific subprogram structures – use language-specific reserved words/structures for generating and formatting output. <p><i>Assessment Tool</i> <i>Assessment Checklist: Advanced Programming Applications (INFPRGM3)</i> <i>Programming: Sample Assignment: PA1 (INFPSAM3)</i></p> <p><i>Standard</i> <i>Rating of 3 in the creation and presentation of programs</i></p>	70

MODULE INF3160: PROGRAMMING APPLICATION 2 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i></p> <p><i>Standard</i> <i>Rating of:</i> 3 – Workstation Use 3 – File Management 3 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • modify existing/develop new algorithms/classes • identify/describe the problem • list each step required to solve the problem/list the required components of the data structure • demonstrate the appropriate logic/data components required to achieve the solution • identify generic characteristics of programming languages • identify steps involved in problem solving independent of programming language • apply structured programming constructs to modify/create a schematic/flowchart/ pseudocode indicating how the solution will be achieved (IPO/HIPO). 	<p>Programmers design algorithms and use either a procedure-oriented or object-oriented language structure to code instructions for specific and unique computer tasks. Various computer languages have been developed over the years to improve computer communication efficiency.</p>

MODULE INF3160: PROGRAMMING APPLICATION 2 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • use constraints, variables, data structures, operands in a second programming language • use reserved words, commands, statements, operators, subroutines, functions in a second programming language • use second language-specific derived data types • input data using reserved words or predefined classes of a second programming language: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types • process data using second language constructs: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions/classes/objects/methods • output/link program segments/programs using reserved words or predefined classes of a second programming language: <ul style="list-style-type: none"> – text/data/graphics. 	See notes from Programming 5.
Structure Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • describe the parallels/differences between the two programming languages • use/develop program segments using second language constructs to enter/manipulate/output data • recode first language programs using second programming language • apply second language constructs in a program • produce algorithms/classes • produce output format • key/code the instructions • test run programs • debug/edit program • execute program • document program • assess activities/results. 	

MODULE INF3160: PROGRAMMING APPLICATION 2 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3170: PROGRAMMING APPLICATION 3

Level: Advanced

Theme: Programming

Prerequisite: INF3160 Programming Application 2

Module Description: Students enhance a program, using a second programming language.

Module Parameters: Computer workstation, programming language, language code manual, support resources.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">create algorithms to solve programming problemscreate programs to solve problems, in a second programming language that include:<ul style="list-style-type: none">one- and two-dimensional arrayscharacter stringssort, search and merge operationsexternal data filesapply, consistently, appropriate workstation routines	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">formulating an algorithm for the solution of the problemdistinguishing generic characteristics of problems and design algorithmic solutions independent of programming languageconstructing programs that<ul style="list-style-type: none">use one- and two-dimensional arraysperform operations on character stringssort, search and merge operationscreate/access external data files. <i>Assessment Tool</i> <i>Assessment Checklist: Advanced Programming Applications (INFPRGM3)</i> <i>Programming: Sample Assignment: PA1 (INFPSAM3)</i> <i>Standard</i> <i>Rating of 3 in the creation and presentation of programs</i> <ul style="list-style-type: none">demonstrate appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> <i>3 – Workstation Use</i> <i>3 – File Management</i> <i>3 – Time Management/Organization</i> <i>3 – Professionalism</i>	<p>20</p> <p>70</p> <p>10</p>

MODULE INF3170: PROGRAMMING APPLICATION 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Algorithms/Classes	<p><i>The student should:</i></p> <ul style="list-style-type: none"> modify existing/develop new algorithms/classes identify/describe the problem list each step required to solve the problem/list the required components of the data structure demonstrate the appropriate logic/data components required to achieve the solution identify steps involved in problem solving independent of programming language apply structured programming constructs to modify/create a schematic/flowchart/pseudocode indicating how the solution will be achieved (IPO/HIPO). 	Programmers normally follow a general or specific set of guidelines when developing computer programs for a client. However, when creating their own computer programs they are able to work within the parameters of their own creativity.
Computer Language Syntax	<ul style="list-style-type: none"> use constraints, variables, data structures, operands in an appropriate programming language use reserved words, commands, statements, operators, subroutines, functions in the selected programming language use language-specific derived data types 	See notes from Programming 5.

MODULE INF3170: PROGRAMMING APPLICATION 3 (continued)

Concept	Specific Learner Expectations	Notes
Computer Language Syntax (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • input data using reserved words or predefined classes: <ul style="list-style-type: none"> – embed/read/enter data – create/assign values/operations to derived data types • process data: <ul style="list-style-type: none"> – calculations/manipulations/decision control/branching/looping/subroutines/functions/classes/objects/methods • output/link program segments/programs using reserved words or predefined classes: <ul style="list-style-type: none"> – text/data/graphics. 	
Structure Computer Programming Applications	<ul style="list-style-type: none"> • access appropriate computer language resource support • use/develop program segments to enter/manipulate/output data • apply selected language constructs in a program • produce algorithms/classes • produce output format • key/code the instructions • test run programs • debug/edit program • execute program • document program • assess activities/results. 	

MODULE INF3170: PROGRAMMING APPLICATION 3 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • apply efficient workstation position and routines that encourage: <ul style="list-style-type: none"> – good health and safety (posture, positioning of hardware and furniture) – security for hardware, software, supplies and personal work • demonstrate efficient and appropriate use of time and resources: <ul style="list-style-type: none"> – start-up procedures – organization of work area – closing procedures • apply effective decision-making strategies in production assignments: <ul style="list-style-type: none"> – plan activities – organize data, information, resources – consider alternatives – evaluate activities/results • use related terminology to describe basic processes, procedures and tools. 	

COURSE INF3180: TELECOMMUNICATIONS 2**Level:** Advanced**Theme:** System Operations**Prerequisite:** INF2190 Telecommunications 1

Course Description: Students demonstrate knowledge of telecommunication systems by designing a new system. They use the Internet in researching and developing their design and for comparing and contrasting various telecommunication initiatives. Students analyze the effect this is having on the individual and society.

Course Parameters: Computer workstation, utility software, access to Internet, support resources.

Supporting Course: INF2200 Information Highway 2

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> use appropriate telecommunication systems, protocols and techniques to transfer messages and manage research 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> demonstrating effective and efficient use of at least two communication systems. <p><i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Systems Infrastructure Presentation/Report (INF3180-1)</i></p> <p><i>Standard</i> <i>Rating of 3 for all applicable tasks</i></p>	15
<ul style="list-style-type: none"> describe how telecommunication systems are evolving, merging and connecting 	<ul style="list-style-type: none"> report or presentation describing two examples of new telecommunication systems: <ul style="list-style-type: none"> target audience benefits and impacts (individual and societal) merging and connecting technologies <p><i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Systems Infrastructure Presentation/Report (INF3180-2)</i></p> <p><i>Standard</i> <i>Rating of 3 in all applicable tasks</i></p>	15
<ul style="list-style-type: none"> design a telecommunication solution that improves communication for an individual, business, or society 	<ul style="list-style-type: none"> a design project that includes: <ul style="list-style-type: none"> problem being addressed intended benefits projected impacts technical outline (schematic and/or prototype) cost projections. <p><i>Assessment Tool</i> <i>Assessment Checklist: Telecommunication Design Project (INF3180-3)</i></p> <p><i>Standard</i> <i>Rating of 3 in all applicable tasks</i></p>	60

COURSE INF3180: TELECOMMUNICATIONS 2 (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> • demonstrate appropriate workstation routines. <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTN)</i> <i>Standard</i> <i>Rating of:</i> <i>3 – Workstation Use</i> <i>3 – File Management</i> <i>3 – Time Management/Organization</i> <i>3 – Professionalism</i> 	10
<ul style="list-style-type: none"> • demonstrate basic competencies. 	<ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tool noted above</i> 	Integrated throughout

Concept	Specific Outcomes	Notes
Transmission Forms and Systems	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • create a telecommunications solution that improves communication options for individuals, business and society • compare and contrast various types of transmission systems: <ul style="list-style-type: none"> – type of information that can be transmitted – present installation base – ability to connect with other systems – future/potential in the telecommunications industry – cost-benefit • describe how common standards allows telecommunication systems to merge and connect 	

MODULE INF3180: TELECOMMUNICATIONS 2 (continued)

Concept	Specific Learner Expectations	Notes
Transmission Forms and Systems (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> identify the types of transmission protocols and common languages used in telecommunications systems and describe how and when they are used. 	<ul style="list-style-type: none"> FTP - file transfer protocol HTTP - hypertext transfer protocol TCP/IP – Internet transmission control protocol/Internet protocol
Telecommunication Infrastructures	<ul style="list-style-type: none"> compare and contrast key elements of an effective computer infrastructure in two or more applications: <ul style="list-style-type: none"> transmission systems information and interactive applications/services software applications standards and protocols people/expertise identify and analyze key challenges facing computer mediated communications; e.g.: <ul style="list-style-type: none"> regulation versus open systems equity of access describe cost implications to establish and maintain a telecommunication system 	
Impact on the Individual and Society	<ul style="list-style-type: none"> identify key social challenges in managing telecommunication technologies in our society: <ul style="list-style-type: none"> access: <ul style="list-style-type: none"> regulation versus open systems personal privacy ease and equity of access (usability, costs) use/applications: <ul style="list-style-type: none"> legal/illegal ethical/unethical courtesies/protocols viruses (positive/negative) describe economic challenges and benefits of a growing telecommunications industry 	

MODULE INF3180: TELECOMMUNICATIONS 2 (continued)

Concept	Specific Learner Expectations	Notes
Impact on the Individual and Society (continued)	<ul style="list-style-type: none">• research different career opportunities in the telecommunications sector:<ul style="list-style-type: none">– competency requirements– educational requirements– benefits– work environment.	
Workstation Management	<ul style="list-style-type: none">• apply efficient workstation position and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies in production assignments:<ul style="list-style-type: none">– plan activities– organize data, information, resources– consider alternatives– evaluate activities/results• use related terminology to describe basic processes, procedures and tools.	

MODULE INF3190: INFORMATION HIGHWAY 3

Level: Advanced

Theme: Dynamic Environment

Prerequisite: INF2200 Information Highway 2

Module Description: Students develop and maintain an Internet/intranet web site that makes use of advanced features.

Module Parameters: Access to networked computer workstation and the Internet.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">develop a multipage web site to be placed on the Internet or a local intranet	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">developing a multipage web site (on an agreed upon topic), which includes:<ul style="list-style-type: none">evidence of preplanninga visually pleasing designa suitably organized layoutappropriate links, text, graphics, anchors, plus advanced feature(s). <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 3 – Researching/Designing/Creating (INF3190–1)</i> <i>Standard</i> <i>Rating of 3 for all applicable tasks</i>	35
<ul style="list-style-type: none">present and describe to a group, the advanced features of a web site	<ul style="list-style-type: none">presentation or report that includes:<ul style="list-style-type: none">demonstrating how the advanced feature(s) works on the pageexplain the procedures followed to make the advanced feature(s) workassist others to include the same advanced feature(s) in their own project. <i>Assessment Tool</i> <i>Assessment Guide: Information Highway 3 – Presenting/Documenting (INF3190–1)</i>	20

MODULE INF3190: INFORMATION HIGHWAY 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> maintain and enhance a web site to improve features and functions 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> demonstration of effective and efficient maintenance and enhancement of a web site by: <ul style="list-style-type: none"> – updating data – editing text, sound, animation, graphics, etc. <p><i>Assessment Tool</i> <i>Assessment Guide: Information Highway 3 – Maintaining/Enhancing (INF3190–1)</i></p> <p><i>Standard</i> <i>Rating of 3 for all applicable tasks</i></p>	35
<ul style="list-style-type: none"> apply, consistently, appropriate workstation routines 	<ul style="list-style-type: none"> demonstration of appropriate workstation routines. <p><i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTA)</i></p> <p><i>Standard</i> <i>Rating of</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism</p>	10
<ul style="list-style-type: none"> demonstrate basic competencies. 	<ul style="list-style-type: none"> observation of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Site Research and Design	<p><i>The student should:</i></p> <ul style="list-style-type: none"> plan the web site pages using a storyboard or similar tool research available features of effective web sites and choose which one(s) to include. 	

MODULE INF3190: INFORMATION HIGHWAY 3 (continued)

Concept	Specific Learner Expectations	Notes
Site Creation	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • create the web site including: <ul style="list-style-type: none"> – pages – text – graphics – links/anchors – advanced feature(s) (e.g., sound, animation, 3D graphics, video) • format information in an acceptable and creative style • test and debug web site. 	
Presentation and Documentation	<ul style="list-style-type: none"> • display the web pages to a group <ul style="list-style-type: none"> – use available presentation • describe how the advanced feature(s) function • instruct a group on how to program the feature(s) into their pages • assist others in the use of the feature(s) • properly cite all resources. 	
Maintenance and Enhancement	<ul style="list-style-type: none"> • identify which areas of web pages need monitoring and updating • evaluate the impact of the web site • using a newly created or existing web site: <ul style="list-style-type: none"> – update data – edit web site (e.g., graphics) – add/modify special feature(s) 	This page will include at least one of sound, animation, 3D graphics, video, frames, etc.

MODULE INF3190: INFORMATION HIGHWAY 3 (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation positions and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies when using the Internet• use related terminology to describe basic protocols, processes and tools.	

COURSE INF3200: INTERNET SERVICES

Level: Advanced

Theme: Dynamic Environment

Prerequisite: INF2200 Information Highway 2

Course Description: Students expand their skills from INF2200 Information Highway 2, by learning how to operate, maintain and build an Internet/intranet site that may include computer bulletin boards, forums, electronic mail, Internet list servers, and/or moderated newsgroups. Proper use of hardware, software and liaison with users and clients is emphasized.

Course Parameters: Access to networked computer workstation and the Internet or intranet.

Supporting Course: INF3190 Information Highway 3

Curriculum and Assessment Standards

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<i>The student will:</i> <ul style="list-style-type: none">• demonstrate competencies to access information from existing electronic messaging systems• design and create an electronic messaging system• maintain and enhance an electronic messaging system	<i>Assessment of student achievement should be based on:</i> <ul style="list-style-type: none">• demonstrating ability to access at least two of the following Internet services—newsgroups, electronic mail, Internet list servers, etc.—efficiently, following established netiquette procedures• designing and building at least <u>one</u> of <u>functional specialized</u> web site, electronic mail system, computer bulletin board, FTP site, news server, Internet list server by:<ul style="list-style-type: none">– configuring hardware– installing software• maintaining files and user accounts<ul style="list-style-type: none">– troubleshooting and diagnosing problems– offering user support services– monitoring/updating information and messages. <p><i>Assessment Tool</i> <i>Assessment Guide: Internet Services (INF3200–I)</i></p> <p><i>Standard</i> <i>Rating of 3 for all applicable tasks</i></p>	<p>20</p> <p>40</p> <p>30</p>

COURSE INF3200: INTERNET SERVICES (continued)

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • apply, consistently, appropriate workstation routines • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • demonstration of appropriate workstation routines <i>Assessment Tool</i> <i>Assessment Checklist: Workstation Routines and Management (INFWRKSTA)</i> <i>Standard</i> <i>Rating of:</i> 2 – Workstation Use 3 – File Management 2 – Time Management/Organization 3 – Professionalism • observation of individual effort and interpersonal interaction during the learning process. <i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i> 	<p>10</p> <p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
Access Information	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • access information from existing computer messaging systems: <ul style="list-style-type: none"> – in-house facilities – local area facilities – long distance facilities • identify and apply appropriate security procedure. 	<p>The student(s) should identify potential or real client(s) and users for their service. This could be a school, local company, community group, club or other organization.</p>
Design/Creation	<ul style="list-style-type: none"> • identify electronic messaging system specifications that address: <ul style="list-style-type: none"> – reasons/conditions to establish network – the structure and choice of Web site, e-mail, list server, bulletin board system, Forum or other messaging system – hardware/software selection – network topologies/training requirements and inter-network connections – financial considerations – ergonomic factors 	<p>Consider apprenticeship or student contract for hands-on experiences.</p> <p>A web site could be as simple as a file system on a standalone computer.</p> <p>An example of a specialized web site would be a student council survey (i.e., a data collection web site).</p>

MODULE INF3200: INTERNET SERVICES (continued)

Concept	Specific Learner Expectations	Notes
Design/Creation (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • design and assemble a functioning system: <ul style="list-style-type: none"> – troubleshooting – diagnosis and remediation • identify basic hardware components and processes necessary to create a functional specialized web site, computer bulletin board, e-mail system, newsgroup, list server, etc. • configure interface/hardware/peripherals • use support manuals/documentation • install appropriate system software • install backup/restore files: <ul style="list-style-type: none"> – create/use directories/folders – incorporate file protection – create/delete messages and information. 	
Maintenance/ Enhancement	<ul style="list-style-type: none"> • demonstrate manager's responsibilities: <ul style="list-style-type: none"> – update information – monitor access/activities – schedule assistance activities – provide assistance to users and clients – evaluate performance – recommend changes – determine parameters/update messages • maintain/update application, operating system and utility software on hard drive <ul style="list-style-type: none"> – use defaults, supervisor housekeeping, diagnostic, viral protection software • demonstrate acceptable electronic communication system operational performance • use support manuals/documentation • follow hardware/software and school/educational regulations • adhere to legal, professional and ethical expectations • establish policies and procedures; e.g., create an acceptable format policy for web pages. 	<p>Consider apprenticeship or student contract for hands-on experiences.</p> <p>An example of a specialized web site would be a student council survey (i.e., a data collection web site).</p>

MODULE INF3200: INTERNET SERVICES (continued)

Concept	Specific Learner Expectations	Notes
Workstation Management	<p><i>The student should:</i></p> <ul style="list-style-type: none">• apply efficient workstation positions and routines that encourage:<ul style="list-style-type: none">– good health and safety (posture, positioning of hardware and furniture)– security for hardware, software, supplies and personal work• demonstrate efficient and appropriate use of time and resources:<ul style="list-style-type: none">– start-up procedures– organization of work area– closing procedures• apply effective decision-making strategies when using the Internet• use related terminology to describe basic protocols, processes and tools.	

INFORMATION PROCESSING

SECTION G: ASSESSMENT TOOLS

The following pages comprise background information and strategies for assessing student achievement and the assessment tools that are listed in Sections D, E and F of this Guide.

This section of the Guide to Standards and Implementation has been designed to provide a common base of understanding about the level of competencies students are expected to demonstrate to successfully complete a module. The goal is to establish assessment standards for junior and senior high school students that are fair, credible and challenging.

These tools will assist teachers throughout the province to more consistently assess student achievement. The purpose of expanding on the assessment standards is to:

- increase confidence among students, parents, business/industry and post-secondary that students can demonstrate the competencies specified in the modules they have completed
- encourage fairness and equity in how students' efforts are judged
- enable learners to focus effort on key learnings
- support teachers and community partners in planning and implementing CTS.

These tools were validated during the optional stage of CTS implementation.

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ASSESSING STUDENT ACHIEVEMENT IN CTS

The CTS assessment standards assess two basic forms of competency:

The CTS assessment standards assess two basic forms of competency:

- What can a student **do**?
 - **make** a product (e.g., wood bowl, report, garment)
 - **demonstrate** a process
 - strand-related competencies (e.g., keyboarding, hair cutting, sewing techniques, lab procedures)
 - basic competencies (e.g., resource use, safety procedures, teamwork).
- What does a student **know**?
 - knowledge base needed to demonstrate a competency (link theory and practice).

CTS Defines *Summative* Assessment Standards

The assessment standards and tools defined for the CTS modules, referenced in Sections D, E and F of this Guide, focus on the final (or summative) assessment of student achievement.

Assessment throughout the learning period (formative assessment) will continue to assess how students are progressing. Teachers direct and respond to students' efforts to learn—setting and marking tasks and assignments, indicating where improvement is needed, sending out interim reports, congratulating excellence, etc.

Teachers will decide which instructional and assessment strategies to apply during the formative learning period. As formative and summative assessment are closely linked, some teachers may wish to modify the tools included in this section to use during the instructional process. Teachers may also develop their own summative assessment tools as long as the standards are consistent with the minimum expectations outlined by Alberta Education.

Grading and Reporting Student Achievement

When a student can demonstrate **ALL** of the exit-level competencies defined for the module (module learner expectations), the teacher will designate the module as “successfully completed.” The teacher will then use accepted grading practices to determine the percentage grade to be given for the module—a mark not less than 50%.

The time frame a teacher allows a student to develop the exit-level competency is a local decision. **NOTE:** The Senior High School Handbook specifies that students must have access to 25 hours of instruction for each credit. Students may, however, attain the required competencies in less time and may proceed to other modules.

Teachers are encouraged to consult their colleagues to ensure grading practices are as consistent as possible.

High school teachers may wish to refer to “Directions for Reporting Student Achievement in CTS” for information on how to use the CTS course codes to report credits students have earned to Alberta Education. (Copies of this document have been forwarded to superintendents and senior high school principals.)

Components of Assessment Standards in CTS

The following components are included in each module:

- **module learner expectations** (shaded left column of the module) define the exit-level competencies students are expected to achieve to complete a module. Each MLE defines and describes critical behaviours that can be measured and observed. The student must meet the standard specified for **ALL** MLEs within a module to be successful.
- **suggested emphasis** (right column of the module) provides a guideline for the relative significance of each MLE and can be used to organize for instruction.

- **conditions and criteria** (middle column of the module) set the framework for the assessment of student competency, specifying the minimum standard for performance and including a reference to assessment tools, where appropriate.

Criteria define the behaviours that a student must demonstrate to meet the designated standard. For example, the criteria could describe the various techniques that must be demonstrated when using a tool, and/or describe the minimum components of a project the student must complete.

Conditions outline the specifications under which a student's competency can be judged. For example, the conditions could specify whether the assessment should be timed or not, or if the student should be allowed to access to support resources or references.

Standard may be defined by (1) assessment tools, which are referenced in this section (or sometimes in approved learning resources) and/or (2) "illustrative examples" of student work, if appropriate.

Assessment Tools included in this section of the Guide tend to be of two types:

- tools generic to a strand or to the entire CTS program; e.g., a standard 5-point rating scale is used in all strands. Other generic tools include assessing reports and presentations and lab safety checklists. (*Names of these tools include the strand code [e.g., "INF" for Information Processing] and a code for the type of tool [e.g., "TDENT" for Text-Data Entry].*)

- tools specific to a module; e.g., assessment checklist for assessing a venture plan in Enterprise and Innovation or a checklist for sketching, drawing and modelling in Design Studies. (*Names of these tools include the module code; e.g., "INF1010-1" indicating that it is the first module-specific tool used in Information Processing Module 1010.*)

Development and Validation Processes

The "Criteria and Condition" and "Suggested Emphasis" columns have been validated, with extensive input from teachers, professional associations/contacts and post-secondary institutions. The goal is to prepare well-structured assessment standards and related assessment tools that:

- establish an appropriate level of challenge and rigour
- relate directly to the type of learning described in the curriculum standard
- are easy to understand
- are efficient to implement
- can provide a consistent measure of what was expected to be measured.

As students and teachers work with the assessment standards and tools, it is expected that levels of performance will increase as more and more students are able to achieve the minimum standard. Therefore, the assessment standards and related tools will continue to be monitored, and revised as necessary to ensure appropriate levels or rigour and challenge, and successful transitions for students as they leave high school and enter the workplace or related post-secondary programs.

ASSESSING STUDENT ACHIEVEMENT IN INFORMATION PROCESSING

Much of the assessment in Information Processing consists of gathering information about what a student knows and is able to do, and being able to compare those outcomes with the standards identified within the curriculum.

Assessing student performance in Information Processing values process as well as product. The focus is primarily on the student's ability to apply knowledge and skills related to using technology and producing documents and presentations rather than the simple acquisition of knowledge and skills.

Assessment Strategies and Tools

A variety of tools have been provided for your reference and use. In the development of the assessment materials there has been an attempt to keep it as simple as possible while also providing guidance and assistance to the teacher. The tools are intended to help you assess students' work as accurately and consistently as possible by stating standards of performance for elements felt to be important within the curriculum as a whole or in specific modules. They also provide standards for "basic competencies" students should be able to demonstrate while engaged in learning.

The tools that have been developed are intended to be used as summative assessment tools. Depending on the way the classroom is organized, they may be used when the student has indicated he or she is ready for the final assessment or by the entire class at the end of the learning period.

Tools Generic to Information Processing

In order to show the progression and continuity of learnings, most tools in Information Processing are generic to particular software applications or document productions. For example, the Assessment Checklist for Word Processing incorporates Word Processing 1, 2 and 3 modules. The progression from basic to advanced software function and document productions can be viewed collectively. The same design was used in the

Applied Processing theme (e.g., INFCRT, INFDOCPR) to show the increasing importance of efficient productivity in work-related environments and articulation with related post-secondary programs. The Reference Chart for Keyboarding and Numberpad Rates (INFKEYNB) is to help create consistency around the province in the assessment of speed and accuracy skill development throughout the six keyboarding modules. The generic Information Processing tool for Workstation Routines and Management (INFWRKSTA) has been incorporated into all modules. It brings into context the basic competencies related to Information Processing.

Tools Specific to Information Processing

The tools that have been developed to assess specific MLEs in a module are labelled with the module number and the tool number; e.g., INF1010-2. They are referred to under the conditions and criteria section for each module.

The assessment tools outline the criteria for assessment and the minimum task performance rating using a five-point scale. These standards establish an appropriate level of performance and achievement for one or more module learner expectations.

A number of module-specific assessment tools have been developed around the frameworks generic to CTS and the strand. These tools identify basic as well as strand-specific skill sets such as:

- Planning and Management
- Information Gathering and Processing
- Presenting/Reporting
- Working Collaboratively.



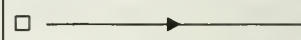
Where appropriate "Illustrated Examples" or "Sample Assignments and Projects" have been developed to help establish realistic expectations and standards of achievement.





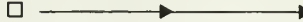
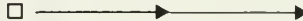



BASIC COMPETENCIES REFERENCE GUIDE

The chart below outlines basic competencies that students endeavour to develop and enhance in each of the CTS strands and modules. Students' basic competencies should be assessed through observations involving the student, teacher(s), peers and others as they complete the requirements for each module. In general, there is a progression of task complexity and student initiative as outlined in the Developmental Framework*. **As students progress through Stages 1, 2, 3 and 4 of this reference guide, they build on the competencies gained in earlier stages.** Students leaving high school should set themselves a goal of being able to demonstrate Stage 3 performance.

Suggested strategies for classroom use include:

- having students rate themselves and each other
- using in reflective conversation between teacher and student
- highlighting areas of strength
- tracking growth in various CTS strands
- highlighting areas upon which to focus
- maintaining a student portfolio.

Stage 1— The student:	Stage 2— The student:	Stage 3— The student:	Stage 4— The student:
Managing Learning <ul style="list-style-type: none"> <input type="checkbox"/> comes to class prepared for learning <input type="checkbox"/> follows basic instructions, as directed <input type="checkbox"/> acquires specialized knowledge, skills and attitudes <input type="checkbox"/> identifies criteria for evaluating choices and making decisions <input type="checkbox"/> uses a variety of learning strategies 	 <ul style="list-style-type: none"> <input type="checkbox"/> follows instructions, with limited direction <input type="checkbox"/> sets goals and establishes steps to achieve them, with direction <input type="checkbox"/> applies specialized knowledge, skills and attitudes in practical situations <input type="checkbox"/> identifies and applies a range of effective strategies for solving problems and making decisions <input type="checkbox"/> explores and uses a variety of learning strategies, with limited direction 	 <ul style="list-style-type: none"> <input type="checkbox"/> follows detailed instructions on an independent basis <input type="checkbox"/> sets clear goals and establishes steps to achieve them <input type="checkbox"/> transfers and applies specialized knowledge, skills and attitudes in a variety of situations <input type="checkbox"/> uses a range of critical thinking skills to evaluate situations, solve problems and make decisions <input type="checkbox"/> selects and uses effective learning strategies <input type="checkbox"/> cooperates with others in the effective use of learning strategies 	 <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates self-direction in learning, goal setting and goal achievement <input type="checkbox"/> transfers and applies learning in new situations; demonstrates commitment to lifelong learning <input type="checkbox"/> thinks critically and acts logically to evaluate situations, solve problems and make decisions <input type="checkbox"/> provides leadership in the effective use of learning strategies
Managing Resources <ul style="list-style-type: none"> <input type="checkbox"/> adheres to established timelines; uses time/schedules/planners effectively <input type="checkbox"/> uses information (material and human resources), as directed <input type="checkbox"/> uses technology (facilities, equipment, supplies), as directed, to perform a task or provide a service <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials, as directed 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to timelines, with limited direction; uses time/schedules/planners effectively <input type="checkbox"/> accesses and uses a range of relevant information (material and human resources), with limited direction <input type="checkbox"/> uses technology (facilities, equipment, supplies), as appropriate, to perform a task or provide a service, with minimal assistance and supervision <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials, with limited assistance 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to detailed timelines on an independent basis; prioritizes task; uses time/schedules/planners effectively <input type="checkbox"/> accesses a range of information (material and human resources), and recognizes when additional resources are required <input type="checkbox"/> selects and uses appropriate technology (facilities, equipment, supplies) to perform a task or provide a service on an independent basis <input type="checkbox"/> maintains, stores and/or disposes of equipment and materials on an independent basis 	<ul style="list-style-type: none"> <input type="checkbox"/> creates and adheres to detailed timelines; uses time/schedules/planners effectively; prioritizes tasks on a consistent basis <input type="checkbox"/> uses a wide range of information (material and human resources) in order to support and enhance the basic requirement <input type="checkbox"/> recognizes the monetary and intrinsic value of managing technology (facilities, equipment, supplies) <input type="checkbox"/> demonstrates effective techniques for managing facilities, equipment and supplies
Problem Solving and Innovation <ul style="list-style-type: none"> <input type="checkbox"/> participates in problem solving as a process <input type="checkbox"/> learns a range of problem-solving skills and approaches <input type="checkbox"/> practices problem-solving skills by responding appropriately to a clearly defined problem, specified goals and constraints, by: <ul style="list-style-type: none"> – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action 	<ul style="list-style-type: none"> <input type="checkbox"/> identifies the problem and selects an appropriate problem-solving approach, responding appropriately to specified goals and constraints <input type="checkbox"/> applies problem-solving skills to a directed or a self-directed activity, by: <ul style="list-style-type: none"> – generating alternatives – evaluating alternatives – selecting appropriate alternative(s) – taking action 	<ul style="list-style-type: none"> <input type="checkbox"/> thinks critically and acts logically in the context of problem solving <input type="checkbox"/> transfers problem-solving skills to real-life situations, by generating new possibilities <input type="checkbox"/> prepares implementation plans <input type="checkbox"/> recognizes risks 	<ul style="list-style-type: none"> <input type="checkbox"/> identifies and resolves problems efficiently and effectively <input type="checkbox"/> identifies and suggests new ideas to get the job done creatively, by: <ul style="list-style-type: none"> – combining ideas or information in new ways – making connections among seemingly unrelated ideas – seeking out opportunities in an active manner

Stage 1— <i>The student:</i>	Stage 2— <i>The student:</i>	Stage 3— <i>The student:</i>	Stage 4— <i>The student:</i>
Communicating Effectively <ul style="list-style-type: none"> <input type="checkbox"/> uses communication skills; e.g., reading, writing, illustrating, speaking <input type="checkbox"/> uses language in appropriate context <input type="checkbox"/> listens to understand and learn <input type="checkbox"/> demonstrates positive interpersonal skills in selected contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> communicates thoughts, feelings and ideas to justify or challenge a position, using written, oral and/or visual means <input type="checkbox"/> uses technical language appropriately <input type="checkbox"/> listens and responds to understand and learn <input type="checkbox"/> demonstrates positive interpersonal skills in many contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> prepares and effectively presents accurate, concise, written, visual and/or oral reports providing reasoned arguments <input type="checkbox"/> encourages, persuades, convinces or otherwise motivates individuals <input type="checkbox"/> listens and responds to understand, learn and teach <input type="checkbox"/> demonstrates positive interpersonal skills in most contexts 	<ul style="list-style-type: none"> <input type="checkbox"/> negotiates effectively, by working toward an agreement that may involve exchanging specific resources or resolving divergent interests <input type="checkbox"/> negotiates and works toward a consensus <input type="checkbox"/> listens and responds to understand, learn, teach and evaluate <input type="checkbox"/> promotes positive interpersonal skills among others
Working with Others <ul style="list-style-type: none"> <input type="checkbox"/> fulfills responsibility in a group project <input type="checkbox"/> works collaboratively in structured situations with peer members <input type="checkbox"/> acknowledges the opinions and contributions of others in the group 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> cooperates to achieve group results <input type="checkbox"/> maintains a balance between speaking, listening and responding in group discussions <input type="checkbox"/> respects the feelings and views of others 	<ul style="list-style-type: none"> <input type="checkbox"/> seeks a team approach, as appropriate, based on group needs and benefits; e.g., idea potential, variety of strengths, sharing of workload <input type="checkbox"/> works in a team or group: <ul style="list-style-type: none"> – encourages and supports team members – helps others in a positive manner – provides leadership/followership as required – negotiates and works toward consensus as required 	<ul style="list-style-type: none"> <input type="checkbox"/> leads, where appropriate, mobilizing the group for high performance <input type="checkbox"/> understands and works within the context of the group <input type="checkbox"/> prepares, validates and implements plans that reveal new possibilities
Demonstrating Responsibility <p>Attendance</p> <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates responsibility in attendance, punctuality and task completion <p>Safety</p> <ul style="list-style-type: none"> <input type="checkbox"/> follows personal and environmental health and safety procedures <input type="checkbox"/> identifies immediate hazards and their impact on self, others and the environment <input type="checkbox"/> follows appropriate/emergency response procedures <p>Ethics</p> <ul style="list-style-type: none"> <input type="checkbox"/> makes personal judgements about whether or not certain behaviours/actions are right or wrong 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> recognizes and follows personal and environmental health and safety procedures <input type="checkbox"/> identifies immediate and potential hazards and their impact on self, others and the environment <input type="checkbox"/>  <input type="checkbox"/> assesses how personal judgements affect other peer members and/or family; e.g., home and school 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> establishes and follows personal and environmental health and safety procedures <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/> assesses the implications of personal/group actions within the broader community; e.g., workplace 	<ul style="list-style-type: none"> <input type="checkbox"/>  <input type="checkbox"/> transfers and applies personal and environmental health and safety procedures to a variety of environments and situations <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/> demonstrates accountability for actions taken to address immediate and potential hazards <input type="checkbox"/> analyzes the implications of personal/group actions within the global context <input type="checkbox"/> states and defends a personal code of ethics as required
★ Developmental Framework <ul style="list-style-type: none"> • Simple task • Structured environment • Directed learning 	<ul style="list-style-type: none"> • Task with limited variables • Less structured environment • Limited direction 	<ul style="list-style-type: none"> • Task with multiple variables • Flexible environment • Self-directed learning, seeking assistance as required 	<ul style="list-style-type: none"> • Complex task • Open environment • Self-directed/self-motivated

GENERIC RATING SCALE

S C A L E	RUBRIC STATEMENT (included in assessment tool/statements in <i>italics</i> are optional) <i>The student:</i>	IS TASK/ PROJECT COMPLETED?	PROBLEM SOLVING: STUDENT INITIATIVE VS TEACHER DIRECTION/ SUPPORT	USE OF TOOLS, MATERIALS, PROCESSES	STANDARDS OF QUALITY/ PRODUCTIVITY	TEAMWORK LEADERSHIP	SERVICE CLIENT/ CUSTOMER
4	exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. <i>Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals. Analyzes and provides effective client/customer services beyond expectations.</i>	Exceeds defined outcomes.	Plans and solves problems effectively and creatively in a self-directed manner.	Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.	<i>Quality, particularly details and finishes, and productivity are consistent and exceed standards.</i>	<i>Leads others to contribute team goals.</i>	<i>Analyzes and provides effective client/customer services beyond expectations.</i>
3	meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. <i>Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.</i>	Meets defined outcomes.	Plans and solves problems in a self-directed manner.	Tools, materials and/or processes are selected and used efficiently and effectively.	<i>Quality and productivity are consistent.</i>	<i>Works cooperatively and contributes ideas and suggestions that enhance team effort.</i>	<i>Analyzes and provides effective client/customer services.</i>
2	meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. <i>Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.</i>	Meets defined outcomes.	Plans and solves problems with limited assistance.	Tools, materials and/or processes are selected and used appropriately.	<i>Quality and productivity are reasonably consistent.</i>	<i>Works cooperatively to achieve team goals.</i>	<i>Identifies and provides customer/client services.</i>
1	meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. <i>Quality and productivity are reasonably consistent. Works cooperatively. Provides a limited range of customer/client services.</i>	Meets defined outcomes.	Follows a guided plan of action.	A limited range of tools, materials and/or processes are used appropriately.	<i>Quality and productivity are reasonably consistent.</i>	<i>Works cooperatively.</i>	<i>Provides a limited range of customer/client services.</i>
0	has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.	Has not completed defined outcomes.		Tools, materials and/or processes are used inappropriately.			

INTRODUCTORY	INTERMEDIATE	ADVANCED
<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree • poses an important question regarding the issue • accesses basic in-school/community information sources regarding the issue • uses one or more information-gathering techniques <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • clarifies different points of view regarding the issue; <i>e.g., social, economic, environmental</i> • states a position on the issue and logical reasons for adopting that position • states an opposing position on the issue and logical reasons for adopting that position • identifies sources of conflict among different positions • distinguishes between fact and fiction/opinion/theory <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • shares work appropriately among group members • respects the views of others <p>Evaluating Choices/Making Decisions</p> <ul style="list-style-type: none"> • identifies useful alternatives regarding the issue • establishes criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate alternative based on established criteria • reflects on strengths/weaknesses of decisions by considering consequences • communicates information in a logical sequence to justify choices/decisions made 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree, explaining areas of disagreement • poses one or more thoughtful questions regarding the issue • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related</i> • states a position on the issue and logical reasons for adopting that position • states two or more opposing positions on the issue and logical reasons for adopting each position • describes interrelationships among different perspectives/points of view • determines accuracy/currency/reliability of information and ideas <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • shares work appropriately among group members • respects and considers the views of others • negotiates solutions to problems <p>Evaluating Choices/Making Decisions</p> <ul style="list-style-type: none"> • identifies important and appropriate alternatives regarding the issue • establishes knowledge- and value-based criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate alternative by showing differences among choices • assesses strengths/weaknesses of decisions by considering consequences • communicates ideas in a logical sequence with supporting detail to justify choices/decisions made 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree, explaining specific causes of disagreement • poses thoughtful questions regarding the issue • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related, scientific, political</i> • states a position on the issue and insightful reasons for adopting that position • states three or more opposing positions on the issue and thoughtful reasons for adopting each position • analyzes interrelationships among different perspectives/points of view • recognizes underlying bias/assumptions/values in information and ideas <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • shares work appropriately among group members • respects and considers the views of others • negotiates with sensitivity solutions to problems <p>Evaluating Choices/Making Decisions</p> <ul style="list-style-type: none"> • describes in detail important and appropriate alternatives regarding the issue • establishes knowledge- and value-based criteria for assessing each alternative; <i>e.g., social, economic, environmental</i> • selects an appropriate and useful alternative by showing differences among choices • assesses strengths/weaknesses of decisions by considering consequences and implications • communicates thoughts/feelings/ideas clearly to justify choices/decisions made

INTRODUCTORY	INTERMEDIATE	ADVANCED
<p><i>The student:</i></p> <p>Management</p> <ul style="list-style-type: none"> • prepares self for task • organizes and works in an orderly manner • carries out instructions accurately • uses time effectively <p>Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members <p>Use of Equipment and Materials</p> <ul style="list-style-type: none"> • selects and uses appropriate equipment/materials • follows safe procedures/techniques • weighs and measures accurately • returns clean equipment/materials to storage areas <p>Investigative Techniques</p> <ul style="list-style-type: none"> • gathers and applies information from at least one source • makes predictions that can be tested • sets up and conducts experiments to test a prediction • distinguishes between manipulated/responding variables • obtains results that can be used to determine if some aspect of the prediction is accurate • summarizes important experimental outcomes 	<p><i>The student:</i></p> <p>Management</p> <ul style="list-style-type: none"> • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively • adheres to routine procedures <p>Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems <p>Use of Equipment and Materials</p> <ul style="list-style-type: none"> • selects and uses appropriate equipment/materials • models safe procedures/techniques • weighs and measures accurately • practises proper sanitation procedures • minimizes waste of materials • advises of potential hazards and necessary repairs <p>Investigative Techniques</p> <ul style="list-style-type: none"> • gathers and applies information from a variety of sources • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • identifies and explains manipulated/responding variables • obtains accurate results that confirm/reject the prediction • summarizes and applies experimental outcomes 	<p><i>The student:</i></p> <p>Management</p> <ul style="list-style-type: none"> • prepares self for task • organizes and works in an orderly manner • interprets and carries out instructions accurately • plans and uses time effectively in a logical sequence • displays leadership in adhering to routine procedures • attempts to solve problems prior to requesting help <p>Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication skills <p>Use of Equipment and Materials</p> <ul style="list-style-type: none"> • selects and uses equipment/materials independently • demonstrates concern for safe procedures/techniques • weighs and measures accurately and efficiently • practises proper sanitation procedures • minimizes waste of materials • anticipates potential hazards and emergency response <p>Investigative Techniques</p> <ul style="list-style-type: none"> • uses relevant information to explain observations • makes predictions that can be tested • plans, sets up and conducts experiments to test a prediction • analyzes relationships among manipulated/responding variables • obtains accurate results that confirm/reject prediction and answer related questions • summarizes, applies and evaluates experimental outcomes

INTRODUCTORY	INTERMEDIATE	ADVANCED
<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree • poses an important question regarding the issue • accesses basic in-school/community information sources regarding the issue • uses one or more information-gathering techniques <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • states a position on the issue and logical reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences • clarifies different points of view regarding the issue; <i>e.g., social, economic, environmental</i> • distinguishes between fact and fiction/opinion/theory <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • works with a range of peer members • shares information/opinions/suggestions through group discussion • listens to and respects the views of others <p>Negotiating and Debating</p> <ul style="list-style-type: none"> • presents a convincing argument in logical sequence supporting a position adopted on the issue • provides a relevant response to opposing arguments • speaks clearly so the argument can be understood • establishes a shared understanding of key alternatives and consequences relevant to the issue 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree, explaining areas of disagreement • poses one or more thoughtful questions regarding the issue • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • states a position on the issue and logical reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related</i> • determines accuracy/currency/reliability of information and ideas <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • works with a range of peer members • shares information/opinions/suggestions, maintaining a balance between speaking and listening • listens to and respects the views of others, requesting clarification as necessary from other group members <p>Negotiating and Debating</p> <ul style="list-style-type: none"> • presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance • provides a relevant and convincing response to opposing arguments • speaks clearly without hesitation so the argument can be understood • negotiates a shared agreement on preferred alternatives relevant to the issue 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • accurately describes an issue on which people disagree, explaining specific causes of disagreement • poses thoughtful questions regarding the issue • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data <p>Analyzing Perspectives</p> <ul style="list-style-type: none"> • states a position on the issue and insightful reasons for adopting that position • explains why the issue is important by presenting examples of possible consequences and implications • categorizes different points of view regarding the issue; <i>e.g., cultural, ethical, economic, environmental, health-related, scientific, political</i> • recognizes underlying bias/assumptions/values in information and ideas <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • works with a wide range of peer members • shares information/opinions/suggestions, maintaining a balance between speaking and listening • listens to and respects the views of others, requesting clarification as necessary from other group members <p>Negotiating and Debating</p> <ul style="list-style-type: none"> • presents a convincing argument in logical sequence supporting a position adopted, conveying points in order of importance and backing each with sound evidence • provides a relevant and convincing rebuttal to opposing arguments • speaks clearly without hesitation so the argument can be understood by all listeners • negotiates a shared agreement on preferred alternatives by resolving divergent points of view

INTRODUCTORY	INTERMEDIATE	ADVANCED
<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets goals and follows instructions accurately • responds to directed questions and follows necessary steps to find answers • accesses basic in-school/community information sources • interprets and organizes information into a logical sequence • records information accurately, using correct technical terms • uses time effectively <p>Presentation</p> <ul style="list-style-type: none"> • demonstrates effective use of at least one medium of communication: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, basic format</i> <u>Oral:</u> <i>voice projection, body language</i> <u>Audio-Visual:</u> <i>techniques, tools</i> • uses correct grammatical convention and technical terms through proofreading/editing • provides an introduction that describes the purpose of the project • communicates information in a logical sequence • states a conclusion based on a summary of facts • provides a reference list of three or more basic information sources 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets goals and describes steps to achieve them • uses personal initiative to formulate questions and find answers • accesses a range of relevant in-school/community resources • interprets, organizes and combines information into a logical sequence • records information accurately with appropriate supporting detail and using correct technical terms • plans and uses time effectively • gathers and responds to feedback regarding approach to task and project status <p>Presentation</p> <ul style="list-style-type: none"> • demonstrates effective use of at least two communication media: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, format (formal/informal)</i> <u>Oral:</u> <i>voice projection, body language, appearance</i> <u>Audio-Visual:</u> <i>techniques, tools, clarity</i> • maintains acceptable grammatical and technical standards through proofreading and editing • provides an introduction that describes the purpose and scope of the project • communicates ideas into a logical sequence with sufficient supporting detail • states a conclusion by synthesizing the information gathered • provides a reference list that includes five or more relevant information sources 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets goals and describes steps to achieve them • uses personal initiative to formulate questions and find answers • accesses a range of relevant information sources and recognizes when additional information is required • interprets, organizes and combines information in creative and thoughtful ways • records information accurately, using appropriate technical terms and supporting detail • plans and uses time effectively, prioritizing tasks on a consistent basis • assesses and refines approach to task and project status based on feedback and reflection <p>Presentation</p> <ul style="list-style-type: none"> • demonstrates effective use of a variety of communication media: e.g., <u>Written:</u> <i>spelling, punctuation, grammar, format (formal/informal, technical/literary)</i> <u>Oral:</u> <i>voice projection, body language, appearance, enthusiasm, evidence of prior practice</i> <u>Audio-Visual:</u> <i>techniques, tools, clarity, speed and pacing</i> • maintains acceptable grammatical and technical standards through proofreading and editing • provides an introduction that describes the purpose and scope of the project • communicates thoughts/feelings/ideas clearly to justify or challenge a position • states a conclusion by analyzing and synthesizing the information gathered • gives evidence of adequate research through a reference list including seven or more relevant information sources

INTRODUCTORY	INTERMEDIATE	ADVANCED
<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets goals and follows instructions accurately • adheres to established timelines • responds to directed questions and follows necessary steps to find answers • uses time effectively <p>Information Gathering and Processing</p> <ul style="list-style-type: none"> • accesses basic in-school/community information sources • uses one or more information-gathering techniques • interprets and organizes information in a logical sequence • records information accurately, using correct technical terms • distinguishes between fact and fiction/opinion/theory • responds to feedback when current approach is not working <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members <p>Information Sharing</p> <ul style="list-style-type: none"> • demonstrates effective use of one or more communication media; <i>e.g., written, oral, audio-visual</i> • communicates information in a logical sequence • uses correct grammatical convention and technical terms • cites three or more basic information sources 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets goals and establishes steps to achieve them • creates and adheres to useful timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively <p>Information Gathering and Processing</p> <ul style="list-style-type: none"> • accesses a range of relevant in-school/community resources • uses a range of information-gathering techniques • interprets, organizes and combines information into a logical sequence • records information accurately with appropriate supporting detail and using correct technical terms • determines accuracy/currency/reliability of information sources • gathers and responds to feedback regarding approach to the task <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members • negotiates solutions to problems <p>Information Sharing</p> <ul style="list-style-type: none"> • demonstrates effective use of two or more communication media; <i>e.g., written, oral, audio-visual</i> • communicates ideas in a logical sequence with sufficient supporting detail • maintains acceptable grammatical and technical standards • cites five or more relevant information sources 	<p><i>The student:</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> • sets clear goals and establishes steps to achieve them • creates and adheres to detailed timelines • uses personal initiative to formulate questions and find answers • plans and uses time effectively, prioritizing tasks on a consistent basis <p>Information Gathering and Processing</p> <ul style="list-style-type: none"> • accesses a range of relevant information sources and recognizes when additional information is required • demonstrates resourcefulness in collecting data • interprets, organizes and combines information in creative and thoughtful ways • records information accurately with appropriate supporting detail and using correct technical terms • recognizes underlying bias/assumptions/values in information sources • assesses and refines approach to the task and project status based on feedback and reflection <p>Collaboration and Teamwork</p> <ul style="list-style-type: none"> • cooperates with group members • shares work appropriately among group members • negotiates with sensitivity solutions to problems • displays effective communication and leadership skills <p>Information Sharing</p> <ul style="list-style-type: none"> • demonstrates effective use of a variety of communication media; <i>e.g., written, oral, audio-visual</i> • communicates thoughts/feelings/ideas clearly to justify or challenge a position • maintains acceptable grammatical and technical standards • gives evidence of adequate information gathering by citing seven or more relevant information sources

ASSESSMENT CHECKLIST: CORRESPONDENCE, REPORTS, TABLES

INFCRT

STUDENT: _____

MODULE: INF _____

STANDARD Rating of 2	Students working at standard must demonstrate preparation of mailable documents (no errors in text and well formatted), under time constraints appropriate for complexity of task, based on unformatted sources by the end of the learning period. The minimum expected keyboarding competence for time constraint purposes is 30 wpm (Keyboarding 2 standard). Keyboarding 3 is recommended as a corequisite to these modules. The at standard level of competency for these intermediate level modules is 2. The scale at the bottom defines the different levels of competencies.
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<i>Correspondence (INF2000)</i>	<i>Reports (INF2100)</i>	<i>Tables/Forms (INF2110)</i>
Formatting of Correspondence: <ul style="list-style-type: none"> <input type="checkbox"/> designs and creates templates/macros/autotext for a variety of correspondence (e.g., letterhead, closing letter/punctuation styles, form letters, memorandums) <input type="checkbox"/> produces letters in a variety of styles from unformatted sources including use of all basic letter parts plus: <ul style="list-style-type: none"> • mailing and special notations • attention lines/subject lines • displayed information (enumerations, quotes, tables) • enclosure/copy notations • second page headings <input type="checkbox"/> merges form letters with multiple records <input type="checkbox"/> produces memorandums from unformatted sources <input type="checkbox"/> edits/reformats existing documents <input type="checkbox"/> produces and prints sets of labels <input type="checkbox"/> produces and prints envelopes according to current Canada Post Corporation guidelines, include mailing/special notations and attention lines * in lieu of printing, send documents to teacher through electronic mail as an attachment 	Formatting of Reports: <ul style="list-style-type: none"> <input type="checkbox"/> designs and creates templates/macros/autotext for a variety of reports (e.g., bound, unbound, multicolumn, formal, informal, APA, MLA) <input type="checkbox"/> produces reports from unformatted sources including the following features: <ul style="list-style-type: none"> • title pages • titles/headings/subheading/sideheadings • table of contents • outlines • display paragraphs/quotes • multicolumns • charts and/or tables • headers/footers • page numbering • citations (footnotes, endnotes, within body) • reference lists and/or bibliographies • appendices (i.e., enumerated summary, charts, tables) • index <input type="checkbox"/> edits/reformats existing documents * in lieu of printing, send documents to teacher through electronic mail as an attachment 	Formatting of Tables: <ul style="list-style-type: none"> <input type="checkbox"/> designs and creates templates/macros/autotext for a variety of multicolumn tables <input type="checkbox"/> produces tables from unformatted sources including the following features: <ul style="list-style-type: none"> • headings/subheadings (multiline) • borders/shading • cell attributes (e.g., fonts, alignments) • math calculations • table sorts • supplemental data (e.g., footnotes) • special options/features (e.g., sort, split/join cells) • decimal alignment • dot leaders <input type="checkbox"/> edits/reformats existing documents <input type="checkbox"/> designs and creates templates for a variety of business forms such as: <ul style="list-style-type: none"> • invoices/credit memos • purchase requisition/orders • statements of account • employee applications • FAX cover sheets <input type="checkbox"/> uses templates to fill out a variety of business forms
Document Editing - enhances the quality of documents and insures all documents are mailable (no errors in text) and well formatted through the use of: <ul style="list-style-type: none"> <input type="checkbox"/> spell check and/or grammar check <input type="checkbox"/> thesaurus <input type="checkbox"/> proofreading skills <input type="checkbox"/> appropriate document format and aesthetically pleasing 	Document Editing - enhances the quality of documents and insures all documents are mailable (no errors in text) and well formatted through the use of: <ul style="list-style-type: none"> <input type="checkbox"/> spell check and/or grammar check <input type="checkbox"/> thesaurus <input type="checkbox"/> proofreading skills <input type="checkbox"/> appropriate document format and aesthetically pleasing 	Document Editing - enhances the quality of documents and insures all documents are mailable (no errors in text) and well formatted through the use of: <ul style="list-style-type: none"> <input type="checkbox"/> spell check and/or grammar check <input type="checkbox"/> thesaurus <input type="checkbox"/> proofreading skills <input type="checkbox"/> appropriate document format and aesthetically pleasing

Rating Scale	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
4 - Demonstrates initiative that exceeds required techniques/skills				

STUDENT:

MODULE: INF

STANDARD Students working at **standard** must demonstrate problem-solving techniques through the use of software functions noted in the checklists below and in the preparation of well-designed and accurate records and reports. The columns to the left of the checklists indicate the minimum competency level for **at standard** performance for the introductory and intermediate level modules. The scale at the bottom defines the different levels of competencies. Note: The list of software functions indicated by an asterisk { * } may need to be adjusted to reflect software that is available.

At Standard	Introductory Level (INF1050)	At Standard	Intermediate Level (INF2070)
1	Solves Problems with Databases <ul style="list-style-type: none"> <input type="checkbox"/> define problem <input type="checkbox"/> plan, design and create databases to solve problems and make decisions <input type="checkbox"/> present data visually through the creation of reports <input type="checkbox"/> analyze data to draw conclusions and make recommendations <input type="checkbox"/> cite references where appropriate 	2	Solves Problems with Databases <ul style="list-style-type: none"> <input type="checkbox"/> define problem <input type="checkbox"/> plan, design and create databases to solve problems and make decisions <input type="checkbox"/> present data visually through the creation of reports <input type="checkbox"/> analyze data to draw conclusions and make recommendations <input type="checkbox"/> cite references where appropriate
1	Format Functions for Creating Records/Forms: <ul style="list-style-type: none"> <input type="checkbox"/> create fields and records using form/list view <input type="checkbox"/> specify size of fields <ul style="list-style-type: none"> – labels (text) – numbers, dates, time – formulas <input type="checkbox"/> enter information into fields: <ul style="list-style-type: none"> – highlight fields/forms/cells – page and margin settings – footers/headers/page numbering <input type="checkbox"/> create calculated field <input type="checkbox"/> use tab to move around a record <input type="checkbox"/> work with multiple records in different views <input type="checkbox"/> align fields: left, right, centre 	2	Format Functions for Creating Records/Forms: <ul style="list-style-type: none"> <input type="checkbox"/> continue use of all software functions in introductory level <input type="checkbox"/> view several part of database at same time in list view <input type="checkbox"/> insert/move/remove a split <input type="checkbox"/> page break in form and list view <input type="checkbox"/> protect a database: unlock and lock fields/form design <input type="checkbox"/> use template function <input type="checkbox"/> merge and or link with two or more databases
1	File/Edit/Proofread/Manipulate Functions <ul style="list-style-type: none"> <input type="checkbox"/> move around database (cursors, go to, select, home, end, page up/down, *scroll bar/arrows) <input type="checkbox"/> create/update/recall/rename files <input type="checkbox"/> locate specific records in a file <input type="checkbox"/> modify records: insert/delete/adjust <ul style="list-style-type: none"> – fields (e.g., name, size) – field entries (text, numbers, dates) – font types/sizes – text styles and field alignments 	2	File/Edit/Proofread/Manipulate Functions <ul style="list-style-type: none"> <input type="checkbox"/> continue use of all software functions from introductory level <input type="checkbox"/> insert/delete manual page breaks <input type="checkbox"/> change headers/footers/page numbers <input type="checkbox"/> search databases to find: <ul style="list-style-type: none"> – selected records that meet several conditions (and/or) – selected records that do not match a specific condition – use mathematical operators/functions to query – use wildcards in a query – use dates in a query
1	Format Functions for Creating Reports <ul style="list-style-type: none"> <input type="checkbox"/> title reports <input type="checkbox"/> select fields for a report <input type="checkbox"/> calculate statistics in rows, columns, for entire report <input type="checkbox"/> sort reports in alphabetic, numeric and chronological order <input type="checkbox"/> search for selected records for a report <input type="checkbox"/> modify reports: add/delete/adjust 	2	Format Functions for Creating Reports <ul style="list-style-type: none"> <input type="checkbox"/> continue use of all software functions at the introductory level <input type="checkbox"/> create and use macros <input type="checkbox"/> merge databases with other documents
Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting
			0 - Does not demonstrate designated technique/skill

Assessment Tools

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CTS, Information Processing /G.17
(1997)

ASSESSMENT CHECKLIST: ELECTRONIC PUBLISHING DOCUMENT PRODUCTION

INFEPDOC

STUDENT: _____

MODULE: INF _____

STANDARD		Students working at standard must demonstrate preparation of well-designed publications with no errors in text and including all features noted below based on reproductions and original creations. The column to the left of the checklists indicates the at standard level of competencies at the introductory, intermediate and advanced levels. The rating scale at the bottom defines the different levels of competencies.			
At Standard	Introductory Level-GT 1	At Standard	Intermediate Level - EP 1	At Standard	Advanced Level - EP 2
1	Plans Drawings: <input type="checkbox"/> gathers information regarding: <ul style="list-style-type: none">• audience• message to be conveyed• image to project• length• purpose <input type="checkbox"/> prepares a thumbnail sketch <input type="checkbox"/> makes decisions regarding types of text, graphics and artwork	2	Plans Publications: <input type="checkbox"/> gathers information regarding: <ul style="list-style-type: none">• audience• message to be conveyed• image to project• length• purpose <input type="checkbox"/> prepares a thumbnail sketch <input type="checkbox"/> makes decisions regarding types of text, graphics and artwork	3	Plans Publications: <input type="checkbox"/> gathers information regarding: <ul style="list-style-type: none">• audience• image to project• purpose <input type="checkbox"/> prepares a thumbnail sketch <input type="checkbox"/> makes decisions regarding types of text, graphics and artwork
1	Reproduces a minimum of three one-page drawings containing: <input type="checkbox"/> basic page layout principles (e.g., optical centre, balance, white space) <input type="checkbox"/> text <input type="checkbox"/> basic text enhancements <input type="checkbox"/> graphic images (e.g., paint, draw and import clipart) <input type="checkbox"/> foreground/background <input type="checkbox"/> filled/colour graphic images <input type="checkbox"/> preview and print drawings Creates a minimum of three original one-page drawings containing: <input type="checkbox"/> basic page layout principles (e.g., optical centre, balance, white space) <input type="checkbox"/> text <input type="checkbox"/> basic text enhancements <input type="checkbox"/> graphic images (e.g., paint, draw and import clip art) <input type="checkbox"/> foreground/background <input type="checkbox"/> filled/colour graphic images <input type="checkbox"/> preview and print drawings	2	Page Layout and Design of Publications: <input type="checkbox"/> reproduces a minimum of three one- and two-page publications containing: <ul style="list-style-type: none">• text (display and body)• graphics and/or artwork (use of scanning and clip art files)• basic text and graphic enhancement (e.g., typefaces, styles, kerning, leading, cropping, fills, rotating text and images)• preview, print and if required reproduce publications <input type="checkbox"/> creates a minimum of three one- and two-page original publications containing: <ul style="list-style-type: none">• text (display and body)• graphics and/or artwork• text and graphic enhancements (e.g. typefaces, styles, kerning, leading, cropping, fills, rotating text and images)• preview and print publications <input type="checkbox"/> follows copyright laws <input type="checkbox"/> continues to use effective page layout principles from introductory level <input type="checkbox"/> uses additional page layout principals such as: <ul style="list-style-type: none">• use of columns• the Z pattern• contrast• rhythm• unity	3	Page Layout and Design of Publications: <input type="checkbox"/> creates a minimum of three multipage original publications containing: <ul style="list-style-type: none">• style sheets or templates• trim size, bleed• text (display and body)• graphics and artwork (graphic tools, scanning and clip art files)• a variety of advanced publication enhancements such as:<ul style="list-style-type: none">– pull quotes, sidebars/footnotes– vertical column division lines,– two-page spread graphic– mastheads and banners <input type="checkbox"/> preview, print and if necessary reproduce publication <input type="checkbox"/> follows copyright laws <input type="checkbox"/> continues to use effective page layout principles from introductory and intermediate levels <input type="checkbox"/> uses additional page layout principles such as: <ul style="list-style-type: none">• proportion• colour• golden section
1	Proofreads and Edits Drawings: <input type="checkbox"/> spelling, grammar, facts, graphics <input type="checkbox"/> hyphenation, punctuation <input type="checkbox"/> page layout and alignment <input type="checkbox"/> consistency	2	Proofreads and Edits Publications: <input type="checkbox"/> spelling, grammar, facts, graphics <input type="checkbox"/> hyphenation, punctuation <input type="checkbox"/> page layout and alignment <input type="checkbox"/> consistency	3	Proofreads and Edits Publications: <input type="checkbox"/> spelling, grammar, facts, graphics <input type="checkbox"/> hyphenation, punctuation <input type="checkbox"/> page layout and alignment <input type="checkbox"/> consistency

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated technique/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: ELECTRONIC PUBLISHING SOFTWARE FUNCTIONS

INFEPSPF

STUDENT: _____

MODULE: INF _____

STANDARD Students working at **standard** must demonstrate appropriate use of the software functions as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for **at standard** performance for the introductory, intermediate and advanced level modules. The rating scale at the bottom defines the different levels of competencies. Note: The list of software functions indicated by an asterisk (*) may need to be adjusted to reflect software that is available.

At Standard	Introductory Level - Graphic Tools	At Standard	Intermediate Level - EP 1	At Standard	Advanced Level - EP 2
1	Format Functions for Creating Drawings: <ul style="list-style-type: none"> <input type="checkbox"/> determines the size of draw area <input type="checkbox"/> moves around in a draw area: <ul style="list-style-type: none"> • page up/down • cursor • scroll bars • mouse <input type="checkbox"/> enlarge the draw area <input type="checkbox"/> enter text <input type="checkbox"/> type styles (e.g., bold, underscore, italics, shadow, outline) <input type="checkbox"/> font styles/sizes <input type="checkbox"/> scan graphic images <input type="checkbox"/> import graphics <input type="checkbox"/> help function <input type="checkbox"/> preview/print drawing 	2	Format Functions for Creating Publications: <ul style="list-style-type: none"> <input type="checkbox"/> page layout grid: multicolumns, margins <input type="checkbox"/> page numbering, headers, footers <input type="checkbox"/> enter display and body text within a DTP program <input type="checkbox"/> import text <input type="checkbox"/> text alignment: left, right, centre, full justified <input type="checkbox"/> text wrap <input type="checkbox"/> indent/block paragraphs <input type="checkbox"/> tabs: left, right, decimal, centre <input type="checkbox"/> typestyles: bold, underscore, italics, reverse type <input type="checkbox"/> typefaces and font sizes <input type="checkbox"/> kerning/leading <input type="checkbox"/> rotate text and images <input type="checkbox"/> text block (create and manipulate) <input type="checkbox"/> preview/print publications (landscape, portrait) <input type="checkbox"/> import clipart/scale and crop image <input type="checkbox"/> scan/insert images <input type="checkbox"/> create captions/dropped or raised capitals 	3	Format Functions for Creating Publications: <ul style="list-style-type: none"> <input type="checkbox"/> continue to use all format functions from intermediate level <input type="checkbox"/> create style sheets and/or master pages <input type="checkbox"/> create templates <input type="checkbox"/> use styles palette (e.g., captions, headlines, body, text) <input type="checkbox"/> use story editor <input type="checkbox"/> enhance a publication's format using: <ul style="list-style-type: none"> • pull quotes • sidebars and footnotes • vertical column division lines • two-page spread graphic • create mastheads and banners <input type="checkbox"/> print composite and colour separations
1	Paint and Draw Tools - makes use of: <ul style="list-style-type: none"> <input type="checkbox"/> application tools (e.g., select, text) <input type="checkbox"/> draw tools (e.g., line, box, circle) <input type="checkbox"/> paint tools <input type="checkbox"/> fill palettes <input type="checkbox"/> line palettes 	2	Tools - makes use of: <ul style="list-style-type: none"> <input type="checkbox"/> line tools (e.g., square and circle tools) <input type="checkbox"/> fill shades, patterns and drop shadowing <input type="checkbox"/> layering graphic objects <input type="checkbox"/> line draw thickness and other attributes <input type="checkbox"/> view function 	3	Tools <ul style="list-style-type: none"> <input type="checkbox"/> continues to use all tools from intermediate level
1	Proofread/Edit Functions <ul style="list-style-type: none"> <input type="checkbox"/> create/update/open/rename files <input type="checkbox"/> backspace/undo <input type="checkbox"/> select/define a cutout <input type="checkbox"/> cut, paste, move <input type="checkbox"/> cropping <input type="checkbox"/> zoom in/out <input type="checkbox"/> edit using erasers <input type="checkbox"/> edit colours <input type="checkbox"/> delete/insert text <input type="checkbox"/> resizing <input type="checkbox"/> repositioning 	2	Proofread/Edit Functions <ul style="list-style-type: none"> <input type="checkbox"/> spell/grammar checks <input type="checkbox"/> change typefaces and typestyles <input type="checkbox"/> select/insert/delete text and graphics <input type="checkbox"/> copy and paste text <input type="checkbox"/> edit line draw/graphic shapes (e.g., stretch, change thickness, reposition, copy to another location, delete/erase a line draw) 	3	Proofread/Edit Functions <ul style="list-style-type: none"> <input type="checkbox"/> spell/grammar checks <input type="checkbox"/> change typefaces and typestyles <input type="checkbox"/> select/insert/delete text and graphics <input type="checkbox"/> copy and paste text <input type="checkbox"/> edit line draw/graphic shapes (e.g., stretch, change thickness, reposition, copy to another location, delete/erase a line draw)

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: SOFTWARE INTEGRATION 1, 2 AND 3

INFINTEG

STUDENT: _____

MODULE: INF _____

STANDARD	Students working at standard must demonstrate preparation of mailable documents (no errors in text or format) based on unformatted sources. Advanced level modules require students to demonstrate workplace competencies by working under time constraints appropriate for the level of complexity of task. The column to left of the checklists indicate the minimum competency level for at standard performance for the intermediate and advanced level modules. The scale at the bottom defines the different levels of competencies.
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At Standard	Document Production 1 (INF2120) <u>Integrated Project</u>	At Standard	Document Production 2 (INF3120) <u>Integrated Project</u>	At Standard	Word Processing Applications (INF3090) <u>Integrated Project</u>
1	<input type="checkbox"/> Creates documents – produces two- to three-page document(s) from unedited, unformatted sources that integrate data, text and graphics. Documents should make use of two of the following types of software: <ul style="list-style-type: none"> • word processing • database • spreadsheets including chart graphing • graphics (paint and draw, clipart files) 	2	<input type="checkbox"/> Creates documents – produces four- to ten-page document(s) from unedited, unformatted sources that integrate and link; e.g., OLE subscribe/publish data, text and graphics. Documents should make use of at least three of the following types of software: <ul style="list-style-type: none"> • word processing • database • spreadsheets including chart graphing • graphics (paint and draw, clipart files) 	3	<input type="checkbox"/> Creates documents – produces a multi-page (more than 10 pages) document(s) from unedited, unformatted sources that integrate and link; e.g., OLE subscribe/publish word processing, spreadsheet, database and graphics
1	<input type="checkbox"/> Document Editing – enhances the quality of documents and insures all documents are mailable (no errors in text) and well-formatted through the use of: <ul style="list-style-type: none"> • spell check and/or grammar check • thesaurus • proofreading skills • elements and principles of design • appropriate document formats • aesthetically pleasing 	2	<input type="checkbox"/> Document Editing – enhances the quality of documents and insures all documents are mailable (no errors in text) and well-formatted through the use of: <ul style="list-style-type: none"> • spell check and/or grammar check • thesaurus • proofreading skills • elements and principles of design • appropriate document formats • aesthetically pleasing 	3	<input type="checkbox"/> Document Editing – enhances the quality of documents and insures all documents are mailable (no errors in text) and well-formatted through the use of: <ul style="list-style-type: none"> • spell check and/or grammar check • thesaurus • proofreading skills • elements and principles of design • appropriate document formats • aesthetically pleasing

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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Module	Keyboarding Rate		Number Pad Rate	
	★WPM	Weighting	★★KPM	Weighting
INF1020 Keyboarding 1 text - 1 min. *SI ≤ 1.2 numeric – 1 min. 1–3 digits max. 1 error	20	20/30	80–83	6/10
	21–22	22/30	84–87	7/10
	23–24	24/30	88–91	8/10
	25–26	26/30	92–95	9/10
	27	28/30	96–97	10/10
	28	29/30		
	29	30/30		
INF2030 Keyboarding 2 text – 2 mins. *SI ≤ 1.25 numeric – 1 min. 1–3 digits max. 1 error	30	32/50	100–103	6/10
	31	34/50	104–107	7/10
	32	36/50	108/111	8/10
	33	38/50	112–115	9/10
	34	40/50	116–118	10/10
	35	42/50		
	36	44/50		
INF2040 Keyboarding 3 text – 2 mins. *SI 1.2–1.35 numeric – 1 min. 1–4 digits max. 1 error	37	46/50		
	38	48/50		
	39	50/50		
	40	32/50	120–125	6/10
	41	34/50	126–131	7/10
	42	36/50	132–137	8/10
	43	38/50	138–143	9/10
	44	40/50	144–148	10/10
	45	42/50		
	46	44/50		
	47	46/50		
	48	48/50		
	49	50/50		

* Note that SI stands for syllabic intensity, which identifies the level of difficulty of a timing (e.g., SI 1.2 indicates the timing has words that average 1.2 syllables in length). The lower the SI the easier the timing. Reference to SI is normally listed at the bottom or top of a timing.

★ (WPM)Words per minute
★★(KPM)Keystrokes per minute

Assessment Tools

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Module	Keyboarding Rate		Number Pad Rate	
	★WPM	Weighting	★★KPM	Weighting
INF3030 Keyboarding 4 text – 3 mins. *SI 1.3–1.4 numeric – 1 min. 1–5 digits max. 1 error	50	32/50	150–155	6/10
	51	34/50	156–161	7/10
	52	36/50	162–167	8/10
	53	38/50	168–173	9/10
	54	40/50	174–178	10/10
	55	42/50		
	56	44/50		
INF3040 Keyboarding 5 text – 3 mins. *SI ≥ 1.35 numeric – 1 min. 1–6 digits max. 1 error	57	46/50		
	58	48/50		
	59	50/50		
	60	32/50	180–183	12/20
	61	34/50	184–187	14/20
	62	36/50	188–191	16/20
	63	38/50	192–195	18/20
INF3050 Keyboarding 6 text – 3 mins. *SI ≥ 1.35 numeric – 1 min. 1–6 digits max. 1 error	64	40/50	196–198	20/20
	65	42/50		
	66	44/50		
	67	46/50		
	68	48/50		
	69	50/50		
	70	32/50	200–203	12/20
	71	34/50	204–207	14/20
	72	36/50	208–211	16/20
	73	38/50	212–215	18/20
	74	40/50	216–219	20/20
	75	42/50		
	76	44/50		
	77	46/50		
	78	48/50		
	79	50/50		

ASSESSMENT CHECKLIST: MULTIMEDIA PRODUCTIONS AND PRESENTATIONS

INFMMDOC

STUDENT: _____

MODULE: INF _____

STANDARD	Students working at standard must demonstrate preparation of well-designed productions/presentations including all features noted below based on edited and original creations. The column to the left of the checklists indicate the at standard level of competencies at the introductory, intermediate and advanced levels. The rating scale at the bottom defines the different levels of competencies.
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At Standard	Introductory Level (INF1070)	At Standard	Intermediate Level (INF2130)	At Standard	Advanced Level (INF3130)
1	Planning <input type="checkbox"/> prepares a storyboard outlining the presentation <input type="checkbox"/> makes decisions regarding text, sound, graphics and animation <input type="checkbox"/> chooses and uses appropriate tools, commands and devices	2	Planning <input type="checkbox"/> prepares a storyboard that outlines a one-minute presentation that contains content and special effects <input type="checkbox"/> makes decisions regarding text, sound, graphics video and animation <input type="checkbox"/> chooses and uses appropriate tools, commands and devices	3	Planning <input type="checkbox"/> prepares a storyboard that contains content and special effects <input type="checkbox"/> makes decisions regarding text, sound, graphics video and animation <input type="checkbox"/> chooses and uses appropriate tools, commands and devices
1	Production of Presentation <input type="checkbox"/> collects required resources <input type="checkbox"/> follows storyboard during production process <input type="checkbox"/> produces presentation using appropriate tools	2	Production of Presentation <input type="checkbox"/> produces a one-minute presentation that contains text, graphics, sound, video and animation. <input type="checkbox"/> follows accepted principles of layout and design <input type="checkbox"/> imports and modifies text material <input type="checkbox"/> imports and modifies graphics <input type="checkbox"/> imports and modifies video clips <input type="checkbox"/> imports and modifies audio clips <input type="checkbox"/> imports and modifies animation <input type="checkbox"/> follows copyright laws	3	Production of Presentation <input type="checkbox"/> produces an original presentation that contains text, graphic, sound, video and animation. <input type="checkbox"/> follows accepted principles of layout and design <input type="checkbox"/> imports original text <input type="checkbox"/> imports original graphic <input type="checkbox"/> imports original audio clips <input type="checkbox"/> imports original video clips <input type="checkbox"/> imports original animation <input type="checkbox"/> follows copyright laws
1	Edit and Testing <input type="checkbox"/> checks spelling, facts, graphics <input type="checkbox"/> tests program links to make sure they work appropriately <input type="checkbox"/> edits to enhance technical quality	2	Edit and Testing <input type="checkbox"/> checks spelling, facts, graphics <input type="checkbox"/> tests program links to make sure they work appropriately <input type="checkbox"/> edits to enhance technical quality	3	Edit and Testing <input type="checkbox"/> checks spelling, facts, graphics <input type="checkbox"/> tests program links to make sure they work appropriately <input type="checkbox"/> edits to enhance technical quality

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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STUDENT: _____

MODULE: INF _____

Students working at **standard** must demonstrate appropriate use of the software functions as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for **at standard** performance for the introductory, intermediate and advanced level modules. The rating scale at the bottom defines the different levels of competencies. Note: the list of software functions indicated by an asterisk (*) may need to be adjusted to reflect software that is available.

At Standard	Introductory Level (INF1070)	At Standard	Intermediate Level (INF2130)	At Standard	Advanced Level (INF3130)
1	Text: uses appropriate software functions to: <input type="checkbox"/> create text <input type="checkbox"/> enhance text (e.g., alignments/fonts/styles)/ <input type="checkbox"/> manipulate and place text (e.g., copy, move, paste)	2	Text: uses appropriate software functions to: <input type="checkbox"/> import/create text <input type="checkbox"/> position text <input type="checkbox"/> size text <input type="checkbox"/> use font styles and colour <input type="checkbox"/> use effects (e.g., fading)	3	Text: uses appropriate software functions to: <input type="checkbox"/> continue to use the software functions from the intermediate level <input type="checkbox"/> capture/import text from external sources <input type="checkbox"/> save text
1	Graphics: uses appropriate software functions to: <input type="checkbox"/> create graphics <input type="checkbox"/> select graphics <input type="checkbox"/> manipulate graphics	2	Graphics: uses appropriate software functions to: <input type="checkbox"/> create background <input type="checkbox"/> import/create graphics (use of scanner, clipart, etc.) <input type="checkbox"/> resize <input type="checkbox"/> use colour palettes <input type="checkbox"/> position graphics	3	Graphics: uses appropriate software functions to: <input type="checkbox"/> continue to use software functions from the intermediate level <input type="checkbox"/> capture/import graphics from external sources <input type="checkbox"/> save
1	Sound: uses appropriate software functions to: <input type="checkbox"/> create sound <input type="checkbox"/> select sounds <input type="checkbox"/> manipulate sounds	2	Sound: uses appropriate software functions to: <input type="checkbox"/> import/create sound <input type="checkbox"/> edit sound file <input type="checkbox"/> save sound file	3	Sound: uses appropriate software functions to: <input type="checkbox"/> continue to use software functions from the intermediate level <input type="checkbox"/> capture/import sounds from peripheral devices <input type="checkbox"/> save digitally
	Video: uses appropriate software functions to: <input type="checkbox"/> insert a pre-made video clip	2	Video: uses appropriate software functions to: <input type="checkbox"/> import existing video clip <input type="checkbox"/> view existing video clip <input type="checkbox"/> edit existing video clip <input type="checkbox"/> merge two or more existing video clips <input type="checkbox"/> save edited video clip	3	Video: uses appropriate software functions to: <input type="checkbox"/> continue to use software functions from the intermediate level <input type="checkbox"/> capture/import video clips from external sources <input type="checkbox"/> save
1	Animation: uses appropriate software functions to: <input type="checkbox"/> create a frame, object or cell based presentation	2	Animation: uses appropriate software functions to: <input type="checkbox"/> import existing animation clip <input type="checkbox"/> view an existing animated clip <input type="checkbox"/> edit an existing animated clip <input type="checkbox"/> create an animated clip	3	Animation: uses appropriate software functions to: <input type="checkbox"/> continue to use software functions from the intermediate level <input type="checkbox"/> create/import animations from external sources <input type="checkbox"/> save

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: INTRODUCTORY AND INTERMEDIATE PROGRAMMING

INFRGM1

STUDENT: _____

MODULE: INF _____

STANDARD		Students working at standard must demonstrate use of problem-solving techniques when producing a program using criteria as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for the introductory and intermediate level modules. The rating scale at the bottom defines the different levels of competencies.	
At Standard	Introductory Level	At Standard	Intermediate Level
1	Problem-solving Phase: <ul style="list-style-type: none"> <input type="checkbox"/> defines the nature of the problem and outlines what the program must do <input type="checkbox"/> creates a simple algorithm that identifies the input, processes, and output of programs <input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program <input type="checkbox"/> codes the algorithm using a programming language <input type="checkbox"/> documents comments to programmers <input type="checkbox"/> debugs and tests sample data <input type="checkbox"/> codes and formats program properly <input type="checkbox"/> evaluates final product to insure proper implementation (see below) 	2	Problem-solving Phase: <ul style="list-style-type: none"> <input type="checkbox"/> defines the nature of the problem and outlines what the program must do <input type="checkbox"/> creates a simple algorithm that identifies the input, processes and output of programs <input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program <input type="checkbox"/> codes the algorithm using a programming language <input type="checkbox"/> documents comments to programmers <input type="checkbox"/> debugs and tests sample data <input type="checkbox"/> codes and formats program properly <input type="checkbox"/> evaluates final product to insure proper implementation (see below)
	Implementation Phase: Creates a minimum of three programs containing the following (see sample assignment 1A) <ul style="list-style-type: none"> <input type="checkbox"/> Input - use of: <ul style="list-style-type: none"> • stringed variables • integer variables • real variables • numeric and string constants • data entered through assignment statements and keyboard entry <input type="checkbox"/> Processes - use of: <ul style="list-style-type: none"> • addition, subtraction, multiplication, division <input type="checkbox"/> Output - formatting required: <ul style="list-style-type: none"> • rounds to a prescribed number of decimal places • lines up decimal points • inserts dollar signs where appropriate • column formatting occurs <input type="checkbox"/> Documentation and Presentation <ul style="list-style-type: none"> • includes statement of problem • presents flowchart to show how program was created • presents user's guide with clear and concise instructions • describes problems encountered during production and testing • aesthetic presentation: follows acceptable design principles 	2	Implementation Phase: Restructures a minimum of three programs to include the following (see sample assignment 3A) <ul style="list-style-type: none"> <input type="checkbox"/> Input - same as introductory level plus use of: <ul style="list-style-type: none"> • appropriate local and global variables <input type="checkbox"/> Processes - same as introductory level plus use of: <ul style="list-style-type: none"> • predetermine, pre-check and post-check looping constructs • decision-making constructs • appropriate subprograms structures • proper one- & two-way parameter passing <input type="checkbox"/> Output <ul style="list-style-type: none"> • same as introductory level <input type="checkbox"/> Documentation and Presentation <ul style="list-style-type: none"> • same as introductory level

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: INTERMEDIATE PROGRAMMING

INFPRGM2

STUDENT: _____

MODULE: INF _____

STANDARD		Students working at standard must demonstrate use of problem-solving techniques when producing programs using criteria as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for the intermediate level modules. The rating scale at the bottom defines the different levels of competencies.			
At Standard	Intermediate Level	At Standard	Intermediate Level	At Standard	Intermediate Level
2	Problem-solving Phase: <ul style="list-style-type: none"><input type="checkbox"/> defines the nature of the problem and outlines what the program must do<input type="checkbox"/> creates an algorithm that identifies the input, processes and output of programs<input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program<input type="checkbox"/> codes the algorithm using a programming language<input type="checkbox"/> documents comments to programmers<input type="checkbox"/> debugs and tests sample data<input type="checkbox"/> codes and formats program properly<input type="checkbox"/> evaluates final product to insure proper implementation (see below)	2	Problem-solving Phase: <ul style="list-style-type: none"><input type="checkbox"/> defines the nature of the problem and outlines what the program must do<input type="checkbox"/> creates a simple algorithm that identifies the input, processes and output of programs<input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program<input type="checkbox"/> codes the algorithm using a programming language<input type="checkbox"/> documents comments to programmers<input type="checkbox"/> debugs and tests sample data<input type="checkbox"/> codes and formats program properly<input type="checkbox"/> evaluates final product to insure proper implementation (see below)	2	Problem-solving Phase: <ul style="list-style-type: none"><input type="checkbox"/> defines the nature of the problem and outlines what the program must do<input type="checkbox"/> creates a simple algorithm that identifies the input, processes and output of programs<input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program<input type="checkbox"/> codes the algorithm using a programming language<input type="checkbox"/> documents comments to programmers<input type="checkbox"/> debugs and tests sample data<input type="checkbox"/> codes and formats program properly<input type="checkbox"/> evaluates final product to insure proper implementation (see below)
2	Implementation Phase: creates a minimum of three programs containing the following (see sample assignment 4A/B for procedure-oriented [P/O] or object-oriented [O/O]) <ul style="list-style-type: none"><input type="checkbox"/> Input - use of:<ul style="list-style-type: none">• stringed, integer and real variables• numeric and string constants• data entered through assignment statements and keyboard entry• appropriate local and global variables• data is stored in appropriate derived data types• error trapping occurs using appropriate derived data types• data components of a class are identified (O/O only)<input type="checkbox"/> Processes - use of:<ul style="list-style-type: none">• addition, subtraction, multiplication, division• predetermine, pre-check and post-check looping constructs• decision-making constructs• appropriate subprogram structures• proper one- and two-way parameter passing• summation of data stored in arrays• predefined string functions and procedures• methods to be used in classes are identified (O/O only)• objects are constructed employing user-defined classes (O/O only)• data is transferred to objects (O/O only)<input type="checkbox"/> Output - formatting required<ul style="list-style-type: none">• rounds to a prescribed number of decimal places• lines up decimal points and inserts dollar signs where appropriate• column formatting occurs<input type="checkbox"/> Documentation and Presentation<ul style="list-style-type: none">• presents statement of problem and algorithm to show how program was created• presents user's guide with clear and concise instructions• describes problems encountered during production and testing• aesthetic presentation: uses acceptable design principles	2	Implementation Phase: Creates a minimum of three programs containing the following (see sample assignment 5A/B for procedure-oriented [P/O] or object-oriented [O/O]) <ul style="list-style-type: none"><input type="checkbox"/> Input - same criteria as in Programming 4 plus:<ul style="list-style-type: none">• modifications to existing classes are identified (O/O only)• characteristics to be inherited by new classes are identified (O/O only)<input type="checkbox"/> Processes - same criteria as in Programming 4 plus use of:<ul style="list-style-type: none">• sorting based on differing criteria (P/O)• search routines (P/O)• merge routines (P/O)<input type="checkbox"/> Output - same criteria as in Programming 4<input type="checkbox"/> Documentation and Presentation - same criteria as in Programming 4	2	Implementation Phase: Creates a minimum of three programs containing the following (see sample assignment 5A/B for procedure-oriented [P/O] or object-oriented [O/O]) <ul style="list-style-type: none"><input type="checkbox"/> Input - same criteria as in Programming 4 plus:<ul style="list-style-type: none">• modifications to existing classes are identified (O/O only)• characteristics to be inherited by new classes are identified (O/O only)<input type="checkbox"/> Processes - same criteria as in Programming 4 plus use of:<ul style="list-style-type: none">• sorting based on differing criteria (P/O)• search routines (P/O)• merge routines (P/O)<input type="checkbox"/> Output - same criteria as in Programming 4<input type="checkbox"/> Documentation and Presentation - same criteria as in Programming 4
Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill

Assessment Tools

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ASSESSMENT CHECKLIST: ADVANCED PROGRAMMING APPLICATIONS

INFPGRM3

STUDENT: _____

MODULE: INF _____

STANDARD	Students working at standard must demonstrate use of problem solving techniques when producing a program using criteria as noted in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for the advanced level modules. The rating scale at the bottom defines the different levels of competencies.
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At Standard	<i>Advanced Level - PA1</i>	<i>Advanced Level - PA2</i>	<i>Advanced Level - PA3</i>
3	<p>Problem-solving Phase:</p> <ul style="list-style-type: none"> <input type="checkbox"/> defines the nature of the problem and outlines what the program must do <input type="checkbox"/> creates an algorithm that identifies the input, processes and output of programs <input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program <input type="checkbox"/> codes the algorithm using a programming language <input type="checkbox"/> documents comments to programmers <input type="checkbox"/> debugs and tests sample data <input type="checkbox"/> codes and formats program properly <input type="checkbox"/> evaluates final product to insure proper implementation <p>Implementation Phase: Creates programs containing the following (see sample assignment PA1)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Input - use of: <ul style="list-style-type: none"> • stringed, integer and real variables • numeric and string constants • data entered through assignment statements and keyboard entry • appropriate local and global variables <input type="checkbox"/> Processes - use of <ul style="list-style-type: none"> • addition, subtraction, multiplication, division • predetermine, precheck and post-check looping constructs • decision-making constructs • appropriate subprograms are structures are selected • proper one- and two-way parameter passing <input type="checkbox"/> Output - formatting required <ul style="list-style-type: none"> • rounds to a prescribed number of decimal places • lines up decimal points • inserts dollar signs where appropriate • column formatting occurs <input type="checkbox"/> Documentation and Presentation <ul style="list-style-type: none"> • presents statement of problem and algorithm to show how program was created • presents user's guide with clear and concise instructions • describes problems encountered during production and testing • aesthetic presentation: uses acceptable design principles 	<p>Problem-solving Phase:</p> <ul style="list-style-type: none"> <input type="checkbox"/> defines the nature of the problem and outlines what the program must do <input type="checkbox"/> creates an algorithm that identifies the input, processes and output of programs <input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program <input type="checkbox"/> codes the algorithm using a programming language <input type="checkbox"/> documents comments to programmers <input type="checkbox"/> debugs and tests sample data <input type="checkbox"/> codes and formats program properly <input type="checkbox"/> evaluates final product to insure proper implementation <p>Implementation Phase: In a second language creates programs containing the following (see sample assignment PA2)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Input - same as PA1 <input type="checkbox"/> Processes - same as PA1 <input type="checkbox"/> Output - same as PA1 <input type="checkbox"/> Documentation and Presentation - same as PA1 	<p>Problem-solving Phase:</p> <ul style="list-style-type: none"> <input type="checkbox"/> defines the nature of the problem and outlines what the program must do <input type="checkbox"/> creates an algorithm that identifies the input, processes and output of programs <input type="checkbox"/> identifies the appropriate constants, variables, etc., in the program <input type="checkbox"/> codes the algorithm using a programming language <input type="checkbox"/> documents comments to programmers <input type="checkbox"/> debugs and tests sample data <input type="checkbox"/> codes and formats program properly <input type="checkbox"/> evaluates final product to insure proper implementation <p>Implementation Phase: In a second language creates or expands on programs to contain the following (see sample assignment PA3)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Input - same as PA2 plus: <ul style="list-style-type: none"> • data is stored in arrays • external data files (text and nontext) are created • data is retrieved from external files <input type="checkbox"/> Processes - same as PA2 plus: <ul style="list-style-type: none"> • files (text and nontext) are created • files are accessed (sequentially and randomly) • the contents of files are modified • data is appended to a file <input type="checkbox"/> Output - same as PA2 <input type="checkbox"/> Documentation and Presentation - same as PA2
3			

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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SAMPLE ASSIGNMENT: 1A

Your school employs you to run the Xerox machine. They pay you \$5.00 per hour. They are obligated to withhold 30% of your gross pay for income tax purposes.

Write a program that allows for the entry of the school name, employee name, number, and the total number of hours worked for the week. The program should produce an output similar to the one below.

Henry Wisewood Senior High School	
Employee #1	Name: Harry Smith
	Hours Worked: 40
	Gross Pay: \$200.00
	Deductions: 66.67
	Net Pay: 133.33

For standard, conditions and criteria see assessment checklist: Introductory and Intermediate Programming (INFPGM1), Introductory level.

SAMPLE ASSIGNMENT: 2A

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Write a program that allows for the entry of the school, the employee name and number, and the total number of hours worked for the week for an unknown number of employees. The program should produce the following output:

Henry Wisewood Senior High School	
Employee #1	Name: Harry Smith
	Hours Worked: 40
	Gross Pay: \$200.00
	Deductions: 66.67
	Net Pay: 133.33
Employee #2	Name: Gordon Elliot
	Hours Worked: 50
	Gross Pay: \$275.00
	Deductions: 115.50
	Net Pay: 160.50

Employee #3 Name: Ken East
 Hours Worked: 10
 Gross Pay: \$90.00
 Deductions: 0.00
 Net Pay: 90.00

For standard, conditions and criteria see assessment checklist: Introductory and Intermediate Programming (INFPGM1), Intermediate level.

SAMPLE ASSIGNMENT: 3A

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Restructure the program in assignment 2A by creating a sub-program to accept the school name, employee number and name, and prints the heading for the pay stub. Write another sub-program that accepts the number of hours worked, calculates the gross pay, calculates the deductions and returns both to the main program. Next, pass these values to a third sub-program, which prints the hours worked, the gross pay, deductions and the net pay. The program should produce the following output:

Henry Wisewood Senior High School	
Employee #1	Name: Harry Smith
	Hours Worked: 40
	Gross Pay: \$200.00
	Deductions: 66.67
	Net Pay: 133.33
Employee #2	Name: Gordon Elliot
	Hours Worked: 50
	Gross Pay: \$275.00
	Deductions: 115.50
	Net Pay: 160.50
Employee #3	Name: Ken East
	Hours Worked: 10
	Gross Pay: \$90.00
	Deductions: 0.00
	Net Pay: 90.00

For standard, conditions and criteria see assessment checklist: Introductory and Intermediate Programming (INFPGM1), Intermediate level.

SAMPLE ASSIGNMENT: 4A/B Procedure-oriented or Object-oriented

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Write a program that uses an array structure to store the data on three employees for one month. The data stored on each employee should include surname, first name, hours worked per week, employee number, number of years worked, and calculates the gross pay and the deductions and returns both to the main program. Next, pass these value to a third sub-program, which prints the hours worked, the gross pay, deductions and the net pay. The program should include appropriate derived data types for error trapping on data entry. The program should produce the following output:

Your school name

Summaries for the data for each employee for the month:

Employee #1 Name: Harry Smith
 Hours Worked: 40
 Gross Pay: \$200.00
 Deductions: 66.67
 Net Pay: 133.33

Name	Hours Worked	Total Gross	Total Deductions	Net Pay
Harry Smith	160	\$ 800.00	\$266.68	\$533.32
Gordon Elliott	200	1100.00	462.00	638.00
Ken East	72	360.00	0.00	360.00

Employee #2 Name:

Gordon Elliot

Hours Worked: 50
 Gross Pay: \$275.00
 Deductions: 115.50
 Net Pay: 160.50

Surname first for the data for each employee for the month:

Name	Hours Worked	Total Gross	Total Deductions	Net Pay
Smith, Harry	160	\$ 800.00	\$266.68	\$533.32
Elliott, Gordon	200	1100.00	462.00	638.00
East, Ken	72	360.00	0.00	360.00

Employee #3 Name:

Ken East

Hours Worked: 10
 Gross Pay: \$90.00
 Deductions: 0.00
 Net Pay: 90.00

Summary for the firm:

Total Gross	\$2260.00
Total Deductions	\$728.68
Total Net	\$1531.32

For standard, conditions and criteria see Assessment Checklist: Intermediate Programming (INFPGM2)

SAMPLE ASSIGNMENT: 5A Procedure-Oriented Programming Project

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Write a program that uses an array structure to store the data on three employees for one month. The data stored on each employee should include surname, first name, hours worked per week, employee number, number of years worked, and calculates the gross pay and the deductions and returns both to the main program. Next, pass these value to a third sub-program, which prints the hours worked, the gross pay, deductions and the net pay. The program should include appropriate derived data types for error trapping on data entry. The program should produce the following:

- data sorted by employee number
- data sorted by employee name
- data sorted by net pay
- a routine to add new employees and merge with existing staff
- a routine to search data for a given employee by name and number

For standard, conditions and criteria see Assessment Checklist: Intermediate Programming (INFPGM2)

SAMPLE ASSIGNMENT: 5B Object-Oriented Programming Project

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Modify the employee benefits to include health benefits and insurance benefits, whether the employee is single, married or not taking any benefits. Premiums for health benefits are deducted at the following rates:

Class	Health Premium	Insurance Premium
Single	\$ 5.00	2% of gross
Family	10.00	3% of gross
No Benefits	0.00	0%

Create a new class for management. This management team will include the President, the Vice President, the Controller and the Secretary. This new class shall inherit the health and insurance premiums from the employee class and include the salary rate for the position; these salaries are correspondingly, \$50,000.00, 45,000.00, \$40,000.00, \$30,000.00 paid monthly.

Write a program that will prompt the operator to enter the number or hours worked per month for each employee. Have it calculate the total gross paid per month to employees and management. Have it print out the total gross expenses to the company per month.

For standard, conditions and criteria see Assessment Checklist: Intermediate Programming (INFPGM2)

SAMPLE ASSIGNMENT: PA1

Your school employs a number of students to run the Xerox machine. The employees are paid \$5.00 per hour. The tax rate varies according to the amount earned (more than \$200.00 per week is calculated at 42%, greater than \$100.00 and less than \$200.00 is calculated at 30%, and less than or equal to \$100.00 pays no tax). Overtime is paid to employees (time and a half to those working over 40 hours per week).

Write a program that will create an external file of employee records. Have the program retrieve and print the contents of the files. Have the program append new employees to the file, and allow for the modification of any employee record in that data file. Have the program create a text file containing the month end summary.

For standard, conditions and criteria see Assessment Checklist: Advanced Programming (INFPGM3)

SAMPLE ASSIGNMENT: PA2

Recode the latest development of your employee program using a second language.

For standard, conditions and criteria see Assessment Checklist: Advanced Programming (INFPGM3)

SAMPLE ASSIGNMENT: PA3

In a second language expand your payroll program to include monthly data on multiple employees. Output should match criteria set in Programming 5 and Programming Applications I.

For standard, conditions and criteria see Assessment Checklist: Advanced Programming (INFPGM3)

STUDENT: _____

MODULE: INF _____

STANDARD Rating of 3	Students working at standard must demonstrate preparation of mailable documents (no errors in text) and well formatted, based on rough draft, unformatted sources. The at standard level of competency for these advanced level modules is 3. The scale at the bottom defines the different levels of competencies.
Simulation I Area of Specialization	Specialization 1 (INF3100)
<input type="checkbox"/> Uses terminology - demonstrates use of appropriate terminology in both written and oral forms for chosen specialization <input type="checkbox"/> Manages time and makes decisions - <ul style="list-style-type: none"> establishes purpose/use of activities establishes timelines/prioritize tasks selects and uses required resources (e.g., appropriate software to use) adheres to applicable office routines/practices <input type="checkbox"/> Creates documents - produces documents from rough draft, unformatted sources that simulate work in a specialized office environment including a variety of the following: <ul style="list-style-type: none"> letters, memos, reports newsletters, tables, enumerations specialized forms, charts, displays itineraries, calendars, agendas, minutes make and use specialized templates, macros or autotext <input type="checkbox"/> Edits exiting documents - retrieve and edit documents related to area of specialization	<p>Specialization 2 (INF3110)</p> <p>Simulation - II - produces documents under time constraints appropriate for the complexity of the task (note: expected keyboarding skill at Keyboarding 2 standard, 30 wpm)</p> <input type="checkbox"/> Uses terminology - demonstrates improvement in the use of appropriate terminology in both written and oral forms for chosen specialization. <input type="checkbox"/> Manages time and makes decisions - <ul style="list-style-type: none"> establishes purpose/use of activities establishes timelines/prioritize tasks selects and uses required resources (e.g., appropriate software to use) adheres to applicable office routines/practices <input type="checkbox"/> Creates documents - continues, now under time constraints, the production of documents from rough draft, unformatted sources that simulate work in a specialized environment including a variety of the following: <ul style="list-style-type: none"> letters, memos, reports newsletters, tables, enumerations specialized forms, charts, displays itineraries, calendars, agendas, minutes make and use specialized templates, macros or autotext <input type="checkbox"/> Edits exiting documents - continues, now under time constraints, to retrieve and edit documents related to area of specialization
<input type="checkbox"/> Document Editing - enhances the quality of documents and insures all documents are mailable (no errors in text) and well-formatted through the use of <ul style="list-style-type: none"> spell check and/or grammar check thesaurus proofreading skills principles of design appropriate document formats aesthetically pleasing look 	<input type="checkbox"/> Document Editing - enhances the quality of documents and insures all documents are mailable (no errors in text) and well-formatted through the use of <ul style="list-style-type: none"> spell check and/or grammar check thesaurus proofreading skills principles of design appropriate document formats aesthetically pleasing look
Rating Scale	<div>4 - Demonstrates initiative that exceeds required techniques/skills</div> <div>3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting</div> <div>2 - Demonstrates all designated techniques/skills, occasionally needs prompting</div> <div>1 - Demonstrates most designated techniques/skills, frequently needs prompting</div> <div>0 - Does not demonstrate designated technique/skill</div>

STUDENT: _____

MODULE: INF _____

STANDARD		Students working at standard must demonstrate problem-solving techniques through the use of software functions noted in the checklists below and in the preparation of well-designed and accurate documents. The columns to the left of the checklists indicate the minimum competency level for at standard performance for the introductory and intermediate level modules. The scale at the bottom defines the different levels of competencies. Note: The list of software functions indicated by an asterisk (*) may need to be adjusted to reflect software that is available.				
At Standard	Introductory Level (INF1060)		At Standard	Intermediate Level (INF2080)		
1	Solves Problems with Spreadsheets <ul style="list-style-type: none"><input type="checkbox"/> defines problems<input type="checkbox"/> plans, designs and creates spreadsheets to solve problems and make decisions<input type="checkbox"/> presents data visually through appropriate selection and use of chart graphing<input type="checkbox"/> analyzes data to draw conclusions and make recommendations<input type="checkbox"/> cites references where appropriate		2	Solves Problems with Spreadsheets <ul style="list-style-type: none"><input type="checkbox"/> defines problems<input type="checkbox"/> plans, designs and creates spreadsheets to solve problems and make decisions<input type="checkbox"/> presents data visually through appropriate selection and use of chart graphing<input type="checkbox"/> analyzes data to draw conclusions and make recommendations<input type="checkbox"/> cites references where appropriate		
	Formatting Functions <ul style="list-style-type: none"><input type="checkbox"/> enters text: headings/labels<input type="checkbox"/> enters values: numbers, *dates, *time<input type="checkbox"/> aligns cells: left, right, centre<input type="checkbox"/> uses text styles: bold, underscore, italics, borders, shading<input type="checkbox"/> uses font styles/sizes<input type="checkbox"/> formats numbers: %, \$, commas, decimals<input type="checkbox"/> enters formulas using:<ul style="list-style-type: none">– operators (e.g., +, -, x, /)– numbers, constant values (e.g., 1, 10, 12.5, -16)– cell and range references (e.g., A10 and A1: A8)	<ul style="list-style-type: none">– functions (sum, avg, min/max)<input type="checkbox"/> fills/copies down and right<input type="checkbox"/> highlights cells, rows, columns and range<input type="checkbox"/> shows/hides gridlines<input type="checkbox"/> creates footers/headers<input type="checkbox"/> pages number text<input type="checkbox"/> uses split/freeze frame<input type="checkbox"/> uses help function<input type="checkbox"/> previews/prints text (*landscape and portrait)	2	Formatting Functions <ul style="list-style-type: none"><input type="checkbox"/> continues to demonstrate use of basic software functions at introductory level<input type="checkbox"/> enters a series of numbers or dates<input type="checkbox"/> uses advanced formula functions such as:<ul style="list-style-type: none">• look up• if/then• calculate/recalculate “what if” scenarios<input type="checkbox"/> hides columns<input type="checkbox"/> incorporates macros<input type="checkbox"/> uses template function<input type="checkbox"/> merges with another document		
1	File/Edit/Proofread/Manipulate Functions <ul style="list-style-type: none"><input type="checkbox"/> creates new files (save as)<input type="checkbox"/> opens/closes/updates files (save)<input type="checkbox"/> navigates around spreadsheet (cursors, go to, select, home, end, page up/down, *scroll bar/arrows)<input type="checkbox"/> changes appearance:<ul style="list-style-type: none">– cell height/width/alignment– add/delete borders and shading	<ul style="list-style-type: none">– setup page (landscape vs. portrait)– margins (top, bottom, right, left)<input type="checkbox"/> inserts/deletes rows and columns<input type="checkbox"/> edits/copies/moves/pastes cells and cell groups<input type="checkbox"/> sorts alphabetically and numerical<input type="checkbox"/> displays/prints showing formulas and values	2	File/Edit/Proofread/Manipulate Functions <ul style="list-style-type: none"><input type="checkbox"/> continues to demonstrate use of basic software functions at intro level<input type="checkbox"/> inserts/deletes manual page breaks<input type="checkbox"/> changes headers/footers/page numbering		
	Chart Formatting Functions <ul style="list-style-type: none"><input type="checkbox"/> converts spreadsheet to chart graphs (bar, line, pie, XY, combination)<input type="checkbox"/> names charts/updates/opens/renames<input type="checkbox"/> creates/edits charts:<ul style="list-style-type: none">– add and delete axes– change scale of axes– add or remove right vertical axis– add or change category labels	<ul style="list-style-type: none">– add or delete data labels change colours and patterns– add, change or delete a legend/title/subtitle– change fronts, font sizes and styles– add gridlines and borders– change page and margin settings<input type="checkbox"/> deletes a chart<input type="checkbox"/> previews/prints charts in landscape and portrait	2	Chart Formatting Functions <ul style="list-style-type: none"><input type="checkbox"/> continues to demonstrate use of basic software functions at introductory level<input type="checkbox"/> changes marker shapes in line graphs<input type="checkbox"/> explodes a pie chart<input type="checkbox"/> mixes lines and bars in a graph<input type="checkbox"/> duplicates a chart<input type="checkbox"/> merges with another document		
Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill	

Assessment Tools

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ASSESSMENT CHECKLIST: TEXT – DATA ENTRY

INFIDENT

STUDENT : _____ MODULE: INF _____

STANDARD	Students working at standard must demonstrate the technique requirements outlined in the checklists below. The columns to the left of the checklists indicate the minimum rating for at standard performance for introductory, intermediate and advanced level modules. The rating scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance.
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Observation of Student	Minimum Standard (Intro Level)	Minimum Standard (Inter Level)	Minimum Standard (Adv. Level)	TECHNIQUE REQUIREMENTS <i>The student:</i>
—	3	3	3	Eye Focus: keeps eyes on copy when doing basic text/data entry (observations should occur during timings or drills on straight copy materials, using the syllabic intensity [SI] defined within the module)
—	2	3	3	Keystroking: <input type="checkbox"/> uses correct fingering for alphabetic, punctuation, numeric and symbol keys as specified in the module <input type="checkbox"/> begins and ends all keystrokes at home-row position <input type="checkbox"/> anchors the appropriate fingers when entering text (returns to home row without pause) <input type="checkbox"/> uses the thumb for the spacebar <input type="checkbox"/> uses enter, shift and tab keys with correct fingers
—	1	2	3	Service Keys: Uses appropriate fingers/hand movements to: <input type="checkbox"/> edits (e.g., insert, delete, backspace) <input type="checkbox"/> moves within document (home, end, page up, page down, arrows) <input type="checkbox"/> activates function keys
—	2	3	3	Body Position: Maintains proper, relaxed body position: <input type="checkbox"/> comfortable distance from keyboard (e.g., hand-span away) <input type="checkbox"/> centered in front of keyboard <input type="checkbox"/> back erect, lower back against back of chair <input type="checkbox"/> feet flat on floor <input type="checkbox"/> fingers curved, wrists level, not resting on keyboard <input type="checkbox"/> arms appropriately positioned

Rating Scale

4	Demonstrates initiative that exceeds required techniques/skills
3	Consistently demonstrates all designated techniques/skills, rarely needs prompting
2	Demonstrates all designated techniques/skills, occasionally needs prompting
1	Demonstrates most designated techniques/skills, frequently needs prompting
0	Does not demonstrate designated technique/skill

REFLECTIONS/COMMENTS

ASSESSMENT CHECKLIST: WORD PROCESSING

INFWP

STUDENT: _____

MODULE: INF _____

STANDARD Students working at **standard** must demonstrate appropriate use of the software functions as noted in the checklists below and during the preparation of mailable documents (no errors in text and format). The columns to the left of the checklists indicate the minimum competency for **at standard** performance for the introductory, intermediate and advanced level modules. The scale at the bottom defines the different levels of competencies. Note: The list of software functions indicated by an asterisk (*) may need to be adjusted to reflect software that is available.

At Standard	Introductory Level (INF1030)	At Standard	Intermediate Level (INF2050)	At Standard	Advanced Level (INF3060)
1	<p>Document Production - a collection of mailable documents focusing on personal applications consisting of basic:</p> <ul style="list-style-type: none"> <input type="checkbox"/> letters (e.g., personal, personal business letters, memos) <input type="checkbox"/> reports (e.g., essays, poems, journals, position papers, research papers) <input type="checkbox"/> tables (e.g., calendars, recipes, lists) <p>that demonstrate the use of the following entry level software functions.</p> <p>Formatting Functions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> rulers/margins/line spacing <input type="checkbox"/> text alignment: left, centre, right, full justified <input type="checkbox"/> tabs/indents <input type="checkbox"/> text styles (e.g., bold, underscore, italics, subscript, superscript) <input type="checkbox"/> font types/sizes <input type="checkbox"/> *basic table functions <input type="checkbox"/> subscripts/superscripts <input type="checkbox"/> bulleted and numbered lists <input type="checkbox"/> borders/shading <input type="checkbox"/> footers/headers <input type="checkbox"/> page numbering <input type="checkbox"/> page breaks (e.g., hard breaks, widows/orphans) <input type="checkbox"/> *insert graphics (size and scale) <input type="checkbox"/> help function <input type="checkbox"/> *preview/print text 	2	<p>Document Production - continues to add to collection of mailable documents focusing on both personal and business applications through the production of detailed:</p> <ul style="list-style-type: none"> <input type="checkbox"/> letters <input type="checkbox"/> reports <input type="checkbox"/> memos <input type="checkbox"/> tables <p>that demonstrate the use of the following software functions.</p> <p>Formatting Functions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> continues to use functions from introductory level <input type="checkbox"/> columns/tables <input type="checkbox"/> footnotes/endnotes <input type="checkbox"/> inserting graphics in boxes/ frames (crop) <input type="checkbox"/> preset macros <input type="checkbox"/> create simple macros <input type="checkbox"/> templates <input type="checkbox"/> autotext <input type="checkbox"/> mail merges <input type="checkbox"/> envelopes and labels features <input type="checkbox"/> math calculations <input type="checkbox"/> additional auto functions (e.g., style gallery, auto format, auto table format) <input type="checkbox"/> additional insert functions (e.g., index, table of contents, figures and authorities, outlines) 	3	<p>Document Production - continues to add to collection of mailable documents focusing on business applications through the production of complex:</p> <ul style="list-style-type: none"> <input type="checkbox"/> letters <input type="checkbox"/> memos <input type="checkbox"/> tables <input type="checkbox"/> reports <p>that demonstrate the use of the following software functions.</p> <p>Formatting Functions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> continues to use functions from introductory and intermediate levels <input type="checkbox"/> customizing features (e.g., toolbars and menus) <input type="checkbox"/> desktop publishing features consisting of: <ul style="list-style-type: none"> • brochure layouts with multiple panels • character and paragraph spacing • wrapping text around boxes/frames <input type="checkbox"/> create more detailed macros <input type="checkbox"/> *draw features <input type="checkbox"/> math calculations <input type="checkbox"/> table sorts <input type="checkbox"/> establish and use libraries and macros
1	<p>File/Edit/Proofread/Manipulate Functions</p> <ul style="list-style-type: none"> <input type="checkbox"/> select text, *format painter <input type="checkbox"/> cut, copy, paste <input type="checkbox"/> move and delete <input type="checkbox"/> zoom <input type="checkbox"/> spell check <input type="checkbox"/> *grammar check <input type="checkbox"/> documents (cursors, go to, scroll) <input type="checkbox"/> thesaurus <input type="checkbox"/> search/find/replace 	2	<p>File/Edit/Proofread/Manipulate Functions</p> <ul style="list-style-type: none"> <input type="checkbox"/> continues to use all functions from introductory level <input type="checkbox"/> *show/hide nonprint characters <input type="checkbox"/> *revision marks <input type="checkbox"/> switching/copying/pasting between documents 	3	<p>File/Edit/Proofread/Manipulate Functions</p> <ul style="list-style-type: none"> <input type="checkbox"/> continues to use all functions from introductory and intermediate levels <input type="checkbox"/> bookmark <input type="checkbox"/> edit macros <input type="checkbox"/> *protect document

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: WORKSTATION ROUTINES AND MANAGEMENT

INFWRKSTN

STUDENT : _____ MODULE: MAM

STANDARD Students working at **standard** must demonstrate the technique requirements outlined in the checklists below. The columns to the left of the checklists indicate the minimum rating for *at standard* performance for introductory, intermediate and advanced level modules. The rating scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance.

Observation of Student	Minimum Standard (Intro Level)	Minimum Standard (Inter Level)	Minimum Standard (Adv. Level)	TECHNIQUE REQUIREMENTS <i>The student:</i>
—	1	2	3	Work Station Routines <ul style="list-style-type: none"> <input type="checkbox"/> appropriately adjusts monitor, keyboard, desk, chair and other equipment to ensure workstation is ergonomically appropriate (comfortable, healthy, safe and efficient) <input type="checkbox"/> maintains good body position <input type="checkbox"/> observes ethical, legal and security measures in handling software and hardware (copyright, privacy, confidentiality) <input type="checkbox"/> maintains an organized, neat workstation
—	2	3	3	File Management <ul style="list-style-type: none"> <input type="checkbox"/> labels, stores, accesses, backs-up, and uses files and disks appropriately <input type="checkbox"/> creates and uses appropriate filenames and directories to organize information in a logical way <input type="checkbox"/> saves, retrieves, moves, copies, deletes, renames files and directories as required
—	1	2	3	Time Management/Organization <ul style="list-style-type: none"> <input type="checkbox"/> locates/uses multiple resources when needing assistance (e.g., print, on-line, teacher, peers) <input type="checkbox"/> allows adequate time for set-up and close-down procedures <input type="checkbox"/> manages time effectively
—	2	3	3	Professionalism <ul style="list-style-type: none"> <input type="checkbox"/> takes initiative in evaluating and adjusting work processes and products to ensure they meet or exceed the standard <input type="checkbox"/> responds to problems and accepts challenges by thinking critically and creatively <input type="checkbox"/> uses related terminology appropriately

Rating Scale

4	Demonstrates initiative that exceeds required techniques/skills
3	Consistently demonstrates all designated techniques/skills, rarely needs prompting
2	Demonstrates all designated techniques/skills, occasionally needs prompting
1	Demonstrates most designated techniques/skills, frequently needs prompting
0	Does not demonstrate designated technique/skill

REFLECTIONS/COMMENTS

ASSESSMENT CHECKLIST:	A. FILE MANAGEMENT PROCEDURES B. TEXT/DATA ENTRY C. COMPUTER WORKSTATION COMPONENTS	INF1010-1
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STUDENT: _____ DATE: _____

STANDARD	Students working at standard will demonstrate appropriate use of all of the points listed on the following three charts, but may need occasional prompting. Students working above standard will rarely need prompting. Note the file management procedures and workstation components may need to be adjusted to better reflect the type of computer equipment and software available.
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A. FILE MANAGEMENT PROCEDURES

Observation of Student	<i>The student can:</i>
Y N	1. boot computer and/or log-on to network
Y N	2. access programs /move between programs
Y N	3. create, use and remove directories/folders
Y N	4. create files
Y N	5. save and retrieve files
Y N	6. rename files
Y N	7. back up files
Y N	8. edit files
Y N	9. copy files
Y N	10. move between files
Y N	11. delete files
Y N	12. format disks
Y N	13. select printer and print files

C. COMPUTER WORKSTATION COMPONENTS

	<i>The student identifies and explains use of:</i>
	Hardware Architecture, Configurations, Peripherals
Y N	1. input systems (e.g., keyboard, mouse, voice, tablet)
Y N	2. operating platforms/systems (e.g., MAC, DOS, WINDOWS)
Y N	3. output devices (e.g., monitor, printer)
Y N	4. communication devices (e.g., modem)
Y N	5. storage mediums (floppy disks, hard drive, network, CD)
	Software
Y N	1. applications (word processing, spreadsheet, integrated, etc.)
Y N	2. shell (e.g., Windows, Finder)
Y N	3. utility (e.g., virus, checkers)

B. TEXT-DATA ENTRY PROCEDURES

Observation of Student	<i>The student:</i>	Student Work	<i>The student:</i>
	demonstrates "touch keyboarding" (correct fingering and eye focus) with:		produces error-free documents by:
Y N	1. alphabetic keys	Y N	1. proofreading text and data (manually and with spell checks if available)
Y N	2. numeric keys (on alpha keyboard)	Y N	2. editing text and data
Y N	3. basic punctuation keys (.,:;?, :)		
Y N	4. shift keys, return/enter		

STUDENT : _____

MODULE: INF _____

STANDARD

Students must prepare and present a report that meets the requirements outlined in the chart. The column to the left of the chart indicates the **at standard** level of competency. The scale on the right-hand side defines the levels of competencies and should be applied when assessing student performance. The minimum rating for **at standard** performance is level **1**, a rating of **2** or above indicates **above standard** performance.

Observation of Student	Minimum Standard	PRESENTATION – REPORT REQUIREMENTS <i>The student:</i>
—	1	<input type="checkbox"/> Preparation and Planning: <ul style="list-style-type: none"> • sets goals and follows instructions accurately • responds to directed questions and follows necessary steps to find answers • accesses basic in-school/community information sources • interprets and organizes information into a logical sequence • records information accurately using correct technical terms • uses time effectively
—	1	<input type="checkbox"/> Presentation and Reporting <ul style="list-style-type: none"> • demonstrates effective use of one or more communication media; e.g., <i>Written:</i> spelling, punctuation, grammar, and basic format <i>Oral</i> - voice projection, body language <i>Audio-Visual</i> - techniques, tools
—	1	Content: The report provides a thorough: <ul style="list-style-type: none"> <input type="checkbox"/> description of current or emerging technological initiative or issue <input type="checkbox"/> actual or potential impact on individual and society <input type="checkbox"/> list of sources of information

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

STUDENT: _____

Observations of student	<i>The student:</i>	CRITERIA
4	Getting Started	<input type="checkbox"/> explains what Internet is and what it is used for <input type="checkbox"/> accesses the Internet through identified service provider <input type="checkbox"/> describes web site addresses (URL) <input type="checkbox"/> explores various web site addresses <input type="checkbox"/> locates and discusses information related to network etiquette <input type="checkbox"/> describes issues and strategies related to personal safety and security
3		
2		
1		
0		
4	Communicating (internal simulation or external) – based on available technology and access, the student:	<input type="checkbox"/> uses e-mail (send messages and attachments, receive, reply, organize mailbox) <input type="checkbox"/> experiences on-line chatting (where permitted) <input type="checkbox"/> explores at least one other newsgroups and/or listservs <input type="checkbox"/> uses other communication technologies on the Internet as they become available such as <ul style="list-style-type: none"> – net phone – hot mail, net address – _____ – _____
3		
2		
1		
0		
4	Access and Report Specific Information – Given a specific topic the student:	<input type="checkbox"/> explores various web sites using alternative menus <ul style="list-style-type: none"> – icons – keying-in – bookmarks
3		
2		<input type="checkbox"/> identifies net servers; e.g., Lycos, Excite <input type="checkbox"/> identifies and uses various directories; e.g., Yahoo <input type="checkbox"/> identifies and uses various search engines; e.g., Webcrawler <input type="checkbox"/> identifies and uses appropriate search strategies <input type="checkbox"/> saves information; e.g., text, graphics, video
1		<input type="checkbox"/> uses Internet sources to produce a report, presentation or project for an identified topic <input type="checkbox"/> adds, deletes and uses bookmarks
0		<input type="checkbox"/> properly cites all Internet sources used

STANDARD IS 1 IN EACH APPLICABLE TASK**Rating Scale**

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

ASSESSMENT GUIDE: WORKSTATION OPERATIONS

INF2010-1

STUDENT: _____

Observations of Student	<i>The student:</i>	CRITERIA
4 3 2 1 0	<p><u>Sets Up and Installs a System</u></p> <p><input type="checkbox"/> identifies need of users and tools (e.g., software and other resources available)</p> <p><input type="checkbox"/> designs a plan for installation and configuration of system</p> <p><input type="checkbox"/> organizes tools for installation and configuration of system</p> <p><input type="checkbox"/> makes use of technical manuals to set up and install hardware and software</p> <p><input type="checkbox"/> connects hardware (e.g., system and cabling)</p> <p><input type="checkbox"/> installs software (well-organized and appropriately named directories on specified drive) for a variety of software including operating system, applications and utilities</p>	
4 3 2 1 0	<p><u>Troubleshoots Software and Hardware</u></p> <p><input type="checkbox"/> tests system after installation</p> <p><input type="checkbox"/> tests system with users for satisfaction</p> <p><input type="checkbox"/> builds defence against viruses</p> <p><input type="checkbox"/> builds defence against intentional and unintentional user exploration</p> <p><input type="checkbox"/> identifies and organizes available resources for users</p>	
4 3 2 1 0	<p><u>Manages and Maintains a System</u></p> <p><input type="checkbox"/> outlines a long-term plan for upgrading technology (e.g., cost/budget, maintenance, effectiveness of system)</p> <p><input type="checkbox"/> establishes policy and procedures on effective use of technology (e.g., personnel issues regarding effective use)</p> <p><input type="checkbox"/> provides training and/or support to those using the system</p>	

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

STUDENT: _____

Observations of Student	<i>The student:</i> CRITERIA
4 3 2 1 0	<u>Researches</u> technology related to robotics: <ul style="list-style-type: none"> <input type="checkbox"/> describes the types of tasks robots perform <input type="checkbox"/> explains how robotics are effecting society now and in the future <input type="checkbox"/> diagrams a basic robot, labelling components including the controller <input type="checkbox"/> describes the functions of labelled components <input type="checkbox"/> explains the processes used to control robots <input type="checkbox"/> gives an example of when it would be feasible to use a robot over a human to perform a task <input type="checkbox"/> gives an example of when it would be feasible to use a human over a robot to perform a task
4 3 2 1 0	<u>Assembles the Robot</u> <ul style="list-style-type: none"> <input type="checkbox"/> follows a blueprint design <input type="checkbox"/> determines the purpose of the robot from the provided design <input type="checkbox"/> assesses the design capabilities of the completed robot <input type="checkbox"/> tests the functionality of the robot to perform designated task
4 3 2 1 0	<u>Presents the Robot</u> <ul style="list-style-type: none"> <input type="checkbox"/> describes the purpose of the robot <input type="checkbox"/> demonstrates the use of the robot to perform designated task <input type="checkbox"/> explains how the interrupts are used to control the robot <input type="checkbox"/> evaluates the capabilities of the robot (what it can and cannot do)

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

This project can be completed individually or as a group.

Research

Research and prepare a presentation in your choice of format (e.g., oral, written, multimedia, visual poster) dealing with the technology of robotics. The presentation should include the following topics:

- types of tasks robots perform
- how robotics are affecting society now and in the future
- diagram a basic robot, labelling components including the controller
- functions of labelled components
- processes used to control robots
- examples of when it would be feasible to use a robot over a human to perform a task
- examples of when it would be feasible to use a human over a robot to perform a task

Assembly of Robot

When assembling the robot you should be able to:

- follow the blueprint design given
- determine the purpose of the robot from provided designs
- assess the design limitations of the completed robot
- test the functionality of the robot to perform task

Presentation of Robot

Present a demonstration of the robot to your teachers and/or class and discuss the following:

- describe the purpose of the robot
- demonstrate the robot's ability to perform a task
- explain how the interrupts are used to control the robot
- explain how the provided code used or did not use the full functionality of the robot in the assigned task
- recommend more effective and efficient uses of the code
- evaluate the code's ability to complete the task assigned in the project
- evaluate your own presentation of the robot

STUDENT: _____

STANDARD	Students must demonstrate effective and efficient use of at least two communication systems to send and receive various types of information. Students working at standard will demonstrate competencies as described in rating scale 2 . Students working above standard will demonstrate competencies as described in rating scale 3 or 4 .
-----------------	--

At Standard	Criteria	Telecommunication System No. 1 <i>The student:</i>	Telecommunication System No. 2 <i>The student:</i>
____ /2	Preparation	<input type="checkbox"/> describes the purpose of the transmission <input type="checkbox"/> identifies the target audience for the transmission <input type="checkbox"/> understands how the communication system works <ul style="list-style-type: none"> • type of system (wired, wireless, merged) • component parts • types of data/information transfer (voice, data, visuals, etc.) 	<input type="checkbox"/> describes the purpose of the transmission <input type="checkbox"/> identifies the target audience for the transmission <input type="checkbox"/> understands how the communication system works <ul style="list-style-type: none"> • type of system (wired, wireless, merged) • component parts • types of data/information transfer (voice, data, visuals, etc.)
____ /2	Use	Sending Messages <ul style="list-style-type: none"> • uses equipment effectively, safely and efficiently • follows proper protocols and procedures Receiving Messages <ul style="list-style-type: none"> • uses equipment effectively, safely and efficiently • follows proper protocols and procedures 	Sending Messages <ul style="list-style-type: none"> • uses equipment effectively, safely and efficiently • follows proper protocols and procedures Receiving Messages <ul style="list-style-type: none"> • uses equipment effectively, safely and efficiently • follows proper protocols and procedures
____ /2	Analysis	<ul style="list-style-type: none"> • Compares of the two systems in terms of cost-benefit. 	

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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ASSESSMENT CHECKLIST: TELECOMMUNICATION SYSTEMS PRESENTATION/REPORT

INF2190-2

STUDENT: _____

STANDARD	Students must demonstrate effective research and presentation/report skills using the criteria as noted in the checklists below by describing TWO wired and TWO wireless systems. Students working at standard will demonstrate competencies as described in rating scale 2 . Students working above standard will demonstrate competencies as described in rating scale 3 or 4 .
-----------------	---

At Standard	Criteria	Wireless System No. 1 <i>The student:</i>	Wireless System No. 2 <i>The student:</i>
____/2	Preparation and Planning	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status
____/2	Presentation	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources
____/2	Content	The presentation/report includes the following: <ul style="list-style-type: none"> • key components of the system • type of information that can be transferred • bandwidth and typical users • estimate of cost to install • estimated cost to use • stage of development (status) 	The presentation/report includes the following: <ul style="list-style-type: none"> • key components of the system • type of information that can be transferred • bandwidth and typical users • estimate of cost to install • estimated cost to use • stage of development (status)
____/2	Analysis	The presentation/report includes a comparison of the two systems and provides projection of which system will become dominant for a particular target audience/user.	

At Standard	Criteria	Wired System No. 1 <i>The student:</i>	Wired System No. 2 <i>The student:</i>
____/2	Preparation and Planning	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status
____/2	Presentation	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources
____/2	Content	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required 	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required
____/2	Analysis	The presentation/report includes a comparison of the two systems and for a particular target audience/user.	The presentation/report includes a comparison of the two systems and provides projection of which system will become dominant

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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STUDENT: _____

STANDARD	Students must demonstrate effective research and presentation/report skills using the criteria as noted in the checklists below by describing TWO telecommunication systems infrastructures (wired or wireless or combined). Students working at standard will demonstrate competencies as described in rating scale 2 .. Students working above standard will demonstrate competencies as described in rating scale 3 or 4 .
----------	--

At Standard ____/2	Criteria	Telecommunication System No. 1 _____ <i>The student:</i>	Telecommunication System No. 2 _____ <i>The student:</i>
	Preparation and Planning	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community resources <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and using correct technical terms <input type="checkbox"/> plans and uses time effectively <input type="checkbox"/> gathers and responds to feedback regarding approach to task and project status
____/2	Presentation	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources	<input type="checkbox"/> demonstrates effective use of at least two communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> states a conclusion by synthesizing the information gathered <input type="checkbox"/> provides a reference list that includes five or more relevant information sources
____/2	Content	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required 	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required
____/2	Analysis	<ul style="list-style-type: none"> • The presentation/report includes a comparison of the two systems and provides projection of which system will become dominant for a particular target audience/user. 	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
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STUDENT: _____

STANDARD IS 2 IN EACH APPLICABLE TASK

CRITERIA	
Observations of student	<i>The student:</i>
	Researching/Evaluating Web Page(s)
4	<input type="checkbox"/> creates a suitable checklist to evaluate web pages
3	<input type="checkbox"/> identifies useful keywords for searching
2	<input type="checkbox"/> explains effective elements used in web pages
1	<input type="checkbox"/> uses a variety of search strategies
0	<input type="checkbox"/> makes use of bookmarks to organize and gain quick access to web sites used in research
	<input type="checkbox"/> finds and collects information on the topics of interest
	Designing/Creating a Web Page(s)
4	<input type="checkbox"/> describe target audience
3	<input type="checkbox"/> outlines an idea for a web page that is of interest
2	<input type="checkbox"/> organizes data for linking to web page
1	<input type="checkbox"/> creates a web page that is visually pleasing, incorporating:
0	<ul style="list-style-type: none"> - a suitable layout for intended purpose - text, graphics, links and anchors - accepted guidelines such as: <ul style="list-style-type: none"> • attractive, yet simple • user friendly • feedback option • test and debug web page
	<input type="checkbox"/> formats information in an acceptable and/or creative style
	Documentation/Presentation
4	<input type="checkbox"/> properly cites all Internet sources used
3	<input type="checkbox"/> prepares report and/or presentation in an acceptable format
2	<input type="checkbox"/> presents web page to others
1	<input type="checkbox"/> provides a guide for new users of the web page
0	
	Enhancing a Web Page(s)
4	<input type="checkbox"/> evaluate the impact of the web page
3	<input type="checkbox"/> identify potential layout improvements
2	<input type="checkbox"/> enhance a newly created or existing web page by:
1	<ul style="list-style-type: none"> - updating data - editing web page (e.g., text, graphics) - adding/modifying special feature(s)
0	<input type="checkbox"/> explain reasons for the changes
	<input type="checkbox"/> present enhanced web page

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

STUDENT: _____

TASK	OBSERVATION/RATING				
Planning and Presentation	4	3	2	1	0
Analysis – Hardware	4	3	2	1	0
Analysis – Software	4	3	2	1	0
Analysis – Report	4	3	2	1	0
Presenting/Reporting	4	3	2	1	0

STANDARD IS 2 IN EACH APPLICABLE TASK**Rating Scale**

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK CHECKLIST - criteria for intermediate level*The student :*☐ **Preparation and Planning**

- sets goals and describes steps to achieve them
- uses personal initiative to formulate questions and find answers
- accesses a range of relevant in-school/community resources
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- plans and uses time effectively
- gathers and responds to feedback regarding approach to task and project status

ANALYSIS - HARDWARE**Content: analyzes and compares**

- ☐ two different computer systems (internal components, peripheral devices) based on:
 - client needs
 - information base
 - implementation timelines
 - financial costs
 - workstation requirements
 - inservice training
 - support services
 - warranties

ANALYSIS - SOFTWARE**Content: analyzes and compares**

- ☐ three task-specific software packages on the basis of:
 - hardware/operating system requirements
 - user friendliness
 - training/learning effectiveness
 - instructional support
 - command/function parameters screen/page characteristics

- intended use/audience
- incompatibility with other software

ANALYSIS REPORT**Content:**

- ☐ prepares a report that responds to an identified need to provide or upgrade a computer system. The report will provide recommendations and rationale for a particular hardware/software components (recommendation and reasons) that addresses:
 - client needs
 - information base
 - implementation timelines
 - financial costs
 - workstation requirements
 - inservice training
 - support services
 - warranties
 - legal restrictions

☐ **Presenting/Reporting**

- demonstrates effective use of at least two communication media:
 - e.g., Written: *spelling, punctuation, grammar, format (formal/informal)*
 - Oral: *voice projection, body language, appearance*
 - Visual: *techniques, tools, clarity*
- maintains acceptable grammatical and technical standards through proofreading and editing
- provides an introduction that describes the purpose and scope of the project
- communicates ideas into a logical sequence with sufficient supporting detail
- states a conclusion by synthesizing the information gathered
- provides a reference list that includes five or more relevant information sources

STUDENT: _____

Observations of Students	<i>The student:</i>	CRITERIA
4	Uses the Network	<input type="checkbox"/> logs in and out; uses password (if necessary) <input type="checkbox"/> demonstrates the ability to access information and programs on a LAN <input type="checkbox"/> demonstrates the ability to download or upload files or data on a LAN <input type="checkbox"/> organizes information on a LAN (e.g., create directories, name files)
3		
2		
1		
0		
4	Relates How Networks Work	<input type="checkbox"/> identifies the LAN's purpose/capabilities <input type="checkbox"/> researches and compares network topologies <input type="checkbox"/> researches installation and sets up hardware and software of a LAN
3		
2		
1		
0		
4	Installs and Troubleshoots Software and Hardware	<input type="checkbox"/> designs a plan for installation and configuration of a LAN <input type="checkbox"/> installs and connects LAN hardware <input type="checkbox"/> installs LAN software <input type="checkbox"/> establishes users groups and security rights <input type="checkbox"/> installs application software <input type="checkbox"/> tests system after installation and make changes as necessary <input type="checkbox"/> tests system with users for satisfaction <input type="checkbox"/> builds a defence against viruses and intentional or unintentional user exploration
3		
2		
1		
0		
4	Presents a Proposal for Maintaining a LAN	<input type="checkbox"/> provides technical support for a LAN for a period of time <input type="checkbox"/> plans and establishes policies and procedures for: <ul style="list-style-type: none"> • ethical use of software • network access, security and backup protection • user access, rights, passwords • file/disk management • software and data upgrades
3		
2		
1		
0		

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

STUDENT: _____

Observations of Student	CRITERIA
	<i>The student:</i>
	Planning
4	<input type="checkbox"/> identifies user's needs and determines how the software can be used to meet those needs
3	<input type="checkbox"/> defines basic information (key tasks, duration)
2	<input type="checkbox"/> links tasks where appropriate
1	<input type="checkbox"/> demonstrates ability to set milestones and constraints
0	<input type="checkbox"/> demonstrates ability to organize tasks into outline—detailing sub-tasks
	<input type="checkbox"/> assigns resources and creates a base calendar
	<input type="checkbox"/> demonstrates ability to view tasks and outline in a sub-task format
	Monitoring
4	<input type="checkbox"/> identifies critical issues
3	<input type="checkbox"/> uses data to resolve time restrictions and resource constraints
2	<input type="checkbox"/> checks if this meets initial needs of user(s)
1	<input type="checkbox"/> makes necessary changes or adjustments
0	<input type="checkbox"/> edits, retrieves and manipulates information
	<input type="checkbox"/> generates project reports as required
	Presenting
4	<input type="checkbox"/> demonstrates the information management tool to others
3	<input type="checkbox"/> discusses the capabilities of the tool
2	<input type="checkbox"/> communicates the information in a logical sequence
1	<input type="checkbox"/> discusses the capabilities and limitations of using the management tool as it relates to the following:
0	<ul style="list-style-type: none"> • user needs • ability to solve the problems of the user

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTION/COMMENTS

STUDENT: _____

Observation of Student	CRITERIA
	<i>The student</i>
4	Researches (expert systems, virtual reality [AI interfaces] or other identified AI technologies such as natural languages, robotics, exploratory programming)
3	<input type="checkbox"/> explains what the AI technology is and how it is affecting society now and in the future
2	<input type="checkbox"/> describes the jobs/tasks that the technology can perform in industry and personal living
1	<input type="checkbox"/> creates a diagram of the technology and its components, label and give a brief description of components
0	<input type="checkbox"/> identifies and gives examples of the advantages and disadvantages of using this type of technology to perform various types of tasks
	<input type="checkbox"/> provides examples of when it would be feasible to use the emerging technology over a human or other present technology to perform a task
	<input type="checkbox"/> describes other important criteria related to specific technology
	<input type="checkbox"/> presents the research in an organized format of choice
	Uses AI Software
4	<input type="checkbox"/> selects and/or identifies software being used
3	<input type="checkbox"/> plans and outlines a task or define and outline the problem
2	<input type="checkbox"/> describes the uses of the selected software
1	<input type="checkbox"/> demonstrates use of selected software to perform task or solve problem
0	<input type="checkbox"/> tests the program developed to perform task or solve problem
	<input type="checkbox"/> adjusts and/or modifies program as a result of test
	Presents the Program
4	<input type="checkbox"/> identifies purpose of program
3	<input type="checkbox"/> demonstrates use of program to complete task or solve problem
2	<input type="checkbox"/> explains the details of the program (how it works, challenges to overcome, etc.)
1	<input type="checkbox"/> evaluates the end results of the program (what it can and cannot do)
0	<input type="checkbox"/> evaluates presentation of the program

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS

This project can be completed individually or as a group.

Research

The five major areas of artificial intelligence comprise **expert systems, natural language, robotics, improved human interfaces (e.g., virtual reality) and exploratory programming**. The area that has received the most attention for commercial use is expert systems. Some areas that expert systems are being functional in are information processing, pattern recognition, game-playing computers and applied fields such as medical diagnosis. **This project will centre around expert systems.**

Within the area of expert systems, you will research and develop a portfolio to gain an introductory knowledge of the concepts. In the second part of the project you will learn how to program a piece of software related to expert systems that will solve a defined problem and you will conclude the project by presenting the program.

Your portfolio should begin with the following:

- *Topic* – describe the nature of your research (select a specific area/field to study, e.g., medical, computer games industry)
- *Resources* – provide a list of available resources you will use
- *Timeline* – a timeline of when activities are expected to be completed
- *Outcomes* – what you expect to achieve by the end of this project

Continue your portfolio by including research consisting of:

- an explanation of what expert systems are and how this technology is affecting society now and in the future (e.g., ethics)
- a description of the jobs/tasks expert systems can perform in industry and personal living
- a description of the area/field of expert systems being explored and a detailed diagram or explanation of the expert system
- identification and provision of examples of the advantages and disadvantages of using expert systems to perform various types of tasks in your chosen area
- identification and provision of examples of when it would be feasible to use expert systems over a human or other technology in your chosen area
- description of other important criteria related to expert systems

Note: Within your above research you should cover topics such as fuzzy logic, state space theory: prepositional logic, interpreted language, knowledge base (facts and rules) + inference engine (reasoning ability) = expert systems ability to perform conclusions, artificial intelligence; the use of user interfaces (e.g., virtual reality) in expert systems; and explanation facilities (systems ability to justify conclusions) in expert systems.

Application of Software

Using PROLOG, LISP or another artificial intelligence software package, write a program that solves one of the following problems:

- A farmer is at the river and needs to get to the other side. He has with him a fox, a goose and some grain. He can only take one item with him in the boat at a time. If the fox will eat the goose and the goose will eat the grain how will he get all three of his possessions over to the other side of the river without them being damaged?
- Write a program that allows two people to play tie-tae-toe on the computer
- Write a program that solves a problem as defined by you and/or your teacher

Presentation of Program

Present a demonstration of the program to your teacher and/or class and discuss the following:

- identify purpose of program
- demonstrate use of program to solve problem
- explain the details of the program (how it works, challenges to overcome, etc.)
- evaluate the end results of the program (what it can and cannot do)
- evaluate presentation of the program

STUDENT: _____

STANDARD	Students must demonstrate effective research and presentation/report skills using the criteria as noted in the checklists below by comparing TWO telecommunication systems (wired or wireless or combined). Students working at standard will demonstrate competencies as described in rating scale 3. Students working above standard will demonstrate competencies as described in rating scale 4.
-----------------	--

At Standard	Criteria	Telecommunication System No. 1 <i>The student:</i>	Telecommunication System No. 2 <i>The student:</i>
____/3	Preparation and Planning	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant information sources and recognizes when additional information is required <input type="checkbox"/> interprets, organizes and combines information in creative and thoughtful ways <input type="checkbox"/> records information accurately, using appropriate technical terms and supporting detail <input type="checkbox"/> plans and uses time effectively, prioritizing tasks on a consistent basis <input type="checkbox"/> assesses and refines approach to task and project status based on feedback and reflection	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant information sources and recognizes when additional information is required <input type="checkbox"/> interprets, organizes and combines information in creative and thoughtful ways <input type="checkbox"/> records information accurately, using appropriate technical terms and supporting detail <input type="checkbox"/> plans and uses time effectively, prioritizing tasks on a consistent basis <input type="checkbox"/> assesses and refines approach to task and project status based on feedback and reflection
____/3	Presentation	<input type="checkbox"/> demonstrates effective use of a variety of communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates thoughts/feelings/ideas clearly to justify or challenge a position <input type="checkbox"/> states a conclusion by analyzing and synthesizing the information gathered <input type="checkbox"/> gives evidence of adequate research through a reference list including seven or more relevant information sources	<input type="checkbox"/> demonstrates effective use of a variety of communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates thoughts/feelings/ideas clearly to justify or challenge a position <input type="checkbox"/> states a conclusion by analyzing and synthesizing the information gathered <input type="checkbox"/> gives evidence of adequate research through a reference list including seven or more relevant information sources
____/3	Content	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required 	The presentation/report includes the following: <ul style="list-style-type: none"> • application/service provided • transmission system used • software used • standards and protocols used • personnel/expertise required
____/3	Analysis	<ul style="list-style-type: none"> • The presentation/report includes a comparison of the two systems and provides projection of which system will become dominant for a particular target audience/user. 	

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
--------------	---	--	---	--	---

STUDENT: _____

STANDARD	Students must demonstrate effective research and presentation/report skills using the criteria as noted in the checklists below by comparing TWO telecommunication systems (wired or wireless or combined). Students working at standard will demonstrate competencies as described in rating scale 3. Students working above standard will demonstrate competencies as described in rating scale 4.
-----------------	--

At Standard	Criteria	Telecommunication System No. 1 <i>The student:</i>	Telecommunication System No. 2 <i>The student:</i>
____/3	Preparation and Planning	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant information sources and recognizes when additional information is required <input type="checkbox"/> interprets, organizes and combines information in creative and thoughtful ways <input type="checkbox"/> records information accurately, using appropriate technical terms and supporting detail <input type="checkbox"/> plans and uses time effectively, prioritizing tasks on a consistent basis <input type="checkbox"/> assesses and refines approach to task and project status based on feedback and reflection	<input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant information sources and recognizes when additional information is required <input type="checkbox"/> interprets, organizes and combines information in creative and thoughtful ways <input type="checkbox"/> records information accurately, using appropriate technical terms and supporting detail <input type="checkbox"/> plans and uses time effectively, prioritizing tasks on a consistent basis <input type="checkbox"/> assesses and refines approach to task and project status based on feedback and reflection
____/3	Presentation	<input type="checkbox"/> demonstrates effective use of a variety of communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates thoughts/feelings/ideas clearly to justify or challenge a position <input type="checkbox"/> states a conclusion by analyzing and synthesizing the information gathered <input type="checkbox"/> gives evidence of adequate research through a reference list including seven or more relevant information sources	<input type="checkbox"/> demonstrates effective use of a variety of communication media <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates thoughts/feelings/ideas clearly to justify or challenge a position <input type="checkbox"/> states a conclusion by analyzing and synthesizing the information gathered <input type="checkbox"/> gives evidence of adequate research through a reference list including seven or more relevant information sources
____/3	Content	The presentation/report includes the following: <ul style="list-style-type: none"> • target audience • benefits and impacts (individual and societal) • merging and connecting technologies 	The presentation/report includes the following: <ul style="list-style-type: none"> • target audience • benefits and impacts (individual and societal) • merging and connecting technologies
____/3	Analysis	<ul style="list-style-type: none"> • The presentation/report includes a comparison of the two systems and provides projection of which system will become dominant for a particular target audience/user. 	

Rating Scale	4 - Demonstrates initiative that exceeds required techniques/skills	3 - Consistently demonstrates all designated techniques/skills, rarely needs prompting	2 - Demonstrates all designated techniques/skills, occasionally needs prompting	1 - Demonstrates most designated techniques/skills, frequently needs prompting	0 - Does not demonstrate designated technique/skill
--------------	---	--	---	--	---

Student: _____

Teacher: _____

Module: _____

Date: _____

CRITERIA	OBSERVATION/ RATING					STANDARD
Management	4	3	2	1	0	3
Teamwork	4	3	2	1	0	NA
Content	4	3	2	1	0	3
Equipment and Materials	4	3	2	1	0	3

STANDARD IS 3 IN EACH APPLICABLE CRITERIA**Rating Scale***The student:*

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

CRITERIA*The student:***Management**

- ☐ prepares self for task
- ☐ organizes and works in an orderly manner
- ☐ interprets and carries out instructions accurately
- ☐ plans and uses time effectively
- ☐ adheres to routine procedures

Teamwork

- ☐ cooperates with group members
- ☐ shares work appropriately among group members
- ☐ negotiates solutions to problems
- ☐ exhibits basic teamwork skills (e.g., appropriate conduct, leadership, commitment, negotiation, sharing)

Content

- ☐ describes problem being addressed and identifies target audience
- ☐ lists improvements/benefits of new design
- ☐ provides appropriate drawings to accurately illustrate:
- ☐ component parts
 - ☐ flow of communication
 - ☐ changes/innovation to original (prior) systems
- ☐ outline projected impacts on target audience
- ☐ prepare prototype of design
- ☐ outline projected costs

Equipment and Materials

- ☐ selects and uses appropriate equipment/materials
- ☐ models safe procedures/techniques
- ☐ minimizes waste of materials
- ☐ advises of potential hazards and necessary repairs

COMMENTS

STUDENT: _____

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale***The student:*

Observation of student	CRITERIA <i>The student:</i>
4	Researching/Designing/Creating a Web Site <input type="checkbox"/> outlines an idea for a web site that is of interest and is appropriate to the audience <input type="checkbox"/> finds and collects information on the topics of interest <input type="checkbox"/> identifies effective elements to be used in web site <input type="checkbox"/> organizes data for linking to other web pages <input type="checkbox"/> constructs a web site that is visually pleasing, incorporating: <ul style="list-style-type: none"> - text, graphics, links, anchors - a functioning advanced feature; e.g., sound, animation - a suitable layout for intended purpose - accepted guidelines such as: <ul style="list-style-type: none"> • attractive, yet simple • user friendly • feedback option <input type="checkbox"/> formats information in an acceptable and/or creative style <input type="checkbox"/> tests and debugs web site
4 3 2 1 0	Presenting/Documenting Advanced Feature(s) <input type="checkbox"/> presents information on how to implement the advanced feature in an understandable manner <input type="checkbox"/> presents web site to others <input type="checkbox"/> assists others to duplicate the special feature(s) <input type="checkbox"/> properly cites all resources
4 3 2 1 0	Maintaining/Enhancing a Web Site <input type="checkbox"/> evaluates the impact of the web site <input type="checkbox"/> identifies which areas of web sites need monitoring <input type="checkbox"/> updates web site <input type="checkbox"/> edits web site (text, graphics, etc.) <input type="checkbox"/> enhances web site by improving or adding special feature(s)

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

STUDENT: _____

Observation of student	CRITERIA
	<i>The student:</i>
4	<u>Accessing Information</u> <input type="checkbox"/> finds and uses existing services of interest; e.g., e-mail <input type="checkbox"/> follows proper netiquette procedure <input type="checkbox"/> reports back findings
3	
2	
1	
0	
4	<u>Designing/Creating</u> <input type="checkbox"/> designs a functional communication system <input type="checkbox"/> builds a functional communication system <input type="checkbox"/> maintains the system for an agreed period of time <input type="checkbox"/> presents information on how to implement the communication system in an understandable manner <input type="checkbox"/> presents system details to others
3	
2	
1	
0	
4	<u>Communication System as an Operator/Manager</u> <input type="checkbox"/> configures hardware and software <input type="checkbox"/> maintains files and user accounts <input type="checkbox"/> troubleshoots and diagnoses problems <input type="checkbox"/> offers user/client support service <input type="checkbox"/> monitors/updates information and messages
3	
2	
1	
0	

STANDARD IS 3 IN EACH APPLICABLE TASK**Rating Scale***The student:*

4	Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. <i>Leads others to contribute to team goals.</i>
3	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. <i>Works cooperatively and contributes ideas and suggestions that enhance team effort.</i>
2	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. <i>Works cooperatively to achieve team goals.</i>
1	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. <i>Works cooperatively.</i>
0	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

REFLECTIONS/COMMENTS:

INFORMATION PROCESSING

SECTION H: LINKAGES/TRANSITIONS

TABLE OF CONTENTS

This section of the Guide has been designed to provide an overview of linkages and transitions of CTS modules with a number of organizations. The charts and information presented in this section will assist CTS students and teachers in understanding the potential application of CTS modules as students move into the workplace.

LINKAGES

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LINKAGES/TRANSITIONS

LINKAGES

The Information Processing strand supports the integration of computers in all CTS strands as well as in all core or other complementary programs. In addition, the competencies developed in the Information Processing strand support a wide range of transitions into the workplace or related post-secondary programs.

With Other CTS Strands

There are direct and indirect linkages between Information Processing and all of the CTS strands, particularly where students are able to use computers as a learning tool. Examples of how students in other strands might use computer technology are indicated in the chart below.

Foods	<ul style="list-style-type: none">determine nutritional content or design and print menus
Legal Studies	<ul style="list-style-type: none">undertake research of precedents (database) or access some of the legal libraries or bulletin boards
Tourism Studies	<ul style="list-style-type: none">design room and table layouts for a banquet or access the travel databases
Communication Technology	<ul style="list-style-type: none">apply knowledge of desktop publishing software in projects requiring layout and design
Financial Management	<ul style="list-style-type: none">apply knowledge of spreadsheets and financial management software to manage personal and business finances
Design Studies	<ul style="list-style-type: none">use understanding of software applications as a basis for learning about computer-assisted design software
Enterprise and Innovation	<ul style="list-style-type: none">use competency in productivity software packages to prepare proposals and analyze the financial implications of ventures
Career Transitions	<ul style="list-style-type: none">use competency in word processing and graphic design to prepare resumes and related correspondence

Note that the project modules from the Career Transitions strand may be combined with modules from the Information Processing strand to provide increased opportunity for students to develop expertise and refine their competencies in a particular module or modules. For example, the project modules could enhance the

programming theme with the following projects:

- machine language programming
- programming graphics
- dynamic variables
- systems design/analysis
- programming simulations.

Potential linkages of Information Processing with other strands, determined by course emphasis and area of specialization, are identified in this section (see “Information Processing: Connections with Other CTS Strands,” page H.6, and “Information Processing: Connections Across the Curriculum,” page H.7).

Many Information Processing modules can be effectively integrated into other strands. For example:

Communication Technology	supporting layout and design concepts: <ul style="list-style-type: none"> Graphics Tools, Electronic Publishing 1–2
Electro-Technologies	supporting the computer logic systems: <ul style="list-style-type: none"> Programming 1–5 Programming Applications 1–3
Management and Marketing	supporting layout and design concepts used in promotion and in setting up a retail store: <ul style="list-style-type: none"> Graphics Tools, Electronic Publishing 1–2 Multimedia Authoring 1 and 2 supporting the writing process in communications strategies: <ul style="list-style-type: none"> Keyboarding 1–4 Word Processing 1–3 Correspondence, Reports, Tables/Forms supporting records management systems: <ul style="list-style-type: none"> Database 1 and 2

With Other Secondary Programs

Many Information Processing modules can be effectively integrated into core and complementary courses.

Potential linkages of Information Processing with other core and complementary subject areas across the curriculum are identified in this section (see “Information Processing: Connections Across the Curriculum,” page H.7).

The following linkages identify broad connections to core programs in junior and senior high.

Language Arts and English Social Studies	supporting the research and writing process: <ul style="list-style-type: none"> • Keyboarding 1–5 • Word Processing 1–3 • Graphics Tools, Electronic Publishing 1–2
Mathematics and Science	supporting problem solving and the organizing, analyzing and presenting of data: <ul style="list-style-type: none"> • Word Processing 1–3 • Electronic Publishing 1–2 • Spreadsheet 1–2 • Database 1–2 • Information Management Tools • Software Integration 1–3 • Programming 1–5 • Programming Application 1–3

With Practical Arts Courses

Courses in the Information Processing strand replace existing content in the senior high Business Education 10–20–30, Typewriting 10–20–30 and Computer Programming 10–20–30. A detailed correlation of the Information Processing strand to these practical arts courses can be found in this section (see “Information Processing–Correlations with Business Education 10–20–30 and Typewriting 10–20–30,” page H.9, “Computer Processing 10–20–30,” page H.11, and “Information Processing–Correlations with Practical Arts Courses,” page H.13).

- 18 occupations that require further education at a college or technical institution (possibly obtaining advanced standing or preferred entrance in the post-secondary program)
- 10 occupations that require further education at the university level (possibly obtaining preferred entrance into a program).

Information from the National Occupational Classification (NOC) regarding occupations in information processing-related areas that can be accessed upon completion of high school is provided in this section (see “Information Processing: Related Occupations,” page H.17).

TRANSITIONS

To the Community/Workplace

The National Occupational Classification (NOC) chart indicates occupations for which Information Processing provides a foundation. High school students could potentially move into:

- 12 occupations requiring a high school education

To Related Post-secondary Programs

An outline of post-secondary institutions in Alberta currently offering programs in information processing-related areas is provided in this section (see “Information Processing: Summary of Related Post-secondary Programs,” page H.18).

Information Processing: Connections With Other CTS Strands

Information Processing Courses	Other CTS Strands																		
	Agriculture	Career Transitions	Communication Technology	Community Health	Construction Technologies	Cosmetology Studies	Design Studies	Energy and Mines	Electro Technologies	Enterprise and Innovation	Fashion Studies	Financial Management	Foods	Fabrication Studies	Forestry	Legal Studies	Logistics	Management and Marketing	Mechanics
Theme: System Operations																			
INF1010: Computer Operations																			
INF2010: Workstation Operations																			
INF3010: Hardware/Software Analysis																			
INF3020: Local Area Networks																			
INF2190: Telecommunications 1																			
INF3180: Telecommunications 2																			
Theme: Text/Data Input																			
INF1020: Keyboarding 1																			
INF2030: Keyboarding 2																			
INF2040: Keyboarding 3																			
INF3030: Keyboarding 4																			
INF3040: Keyboarding 5																			
INF3050: Keyboarding 6																			
Theme: Productivity Software																			
INF1030: Word Processing 1																			
INF1040: Graphics Tools																			
INF1050: Database 1																			
INF1060: Spreadsheet 1																			
INF1070: Hypermedia Tools																			
INF2050: Word Processing 2																			
INF2060: Electronic Publishing 1																			
INF2070: Database 2																			
INF2080: Spreadsheet 2																			
INF2130: Multimedia Authoring 1																			
INF3060: Word Processing 3																			
INF3070: Electronic Publishing 2																			
INF3080: Information Management Tools																			
INF3130: Multimedia Authoring 2																			
Theme: Applied Processing																			
INF2090: Correspondence																			
INF2100: Reports																			
INF2110: Tables/Forms																			
INF2120: Software Integration 1																			
INF3090: Software Integration 3																			
INF3100: Specialization 1																			
INF3110: Specialization 2																			
INF3120: Software Integration 2																			
Theme: Dynamic Environment																			
INF1090: Information Highway 1																			
INF2140: Process Control																			
INF2200: Information Highway 2																			
INF3140: Expert Systems																			
INF3190: Information Highway 3																			
INF3200: Internet Services																			
Theme: Programming																			
INF1080: Programming 1																			
INF2150: Programming 2																			
INF2160: Programming 3																			
INF2170: Programming 4																			
INF2180: Programming 5																			
INF3150: Programming Application 1																			
INF3160: Programming Application 2																			
INF3170: Programming Application 3																			

Provides many direct links with competencies in this strand. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical situations.

Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.

Information Processing: Connections Across the Curriculum

		Across the Curriculum															
		Junior High								Senior High							
		Language Arts	Social Studies	Mathematics	Science	Health & PLS	Physical Education	Fine Arts	English	Social Studies	Mathematics	Science (General)	Biology	Chemistry	Physics	CALM	Physical Education
Information Processing Courses																	
Theme: System Operations																	
INF1010: Computer Operations																	
INF2010: Workstation Operations																	
INF3010: Hardware/Software Analysis																	
INF3020: Local Area Networks																	
INF2190: Telecommunications 1																	
INF3180: Telecommunications 2																	
Theme: Text/Data Input																	
INF1020: Keyboarding 1																	
INF2030: Keyboarding 2																	
INF2040: Keyboarding 3																	
INF3030: Keyboarding 4																	
INF3040: Keyboarding 5																	
INF3050: Keyboarding 6																	
Theme: Productivity Software																	
INF1030: Word Processing 1																	
INF1040: Graphics Tools																	
INF1050: Database 1																	
INF1060: Spreadsheet 1																	
INF1070: Hypermedia Tools																	
INF2050: Word Processing 2																	
INF2060: Electronic Publishing 1																	
INF2070: Database 2																	
INF2080: Spreadsheet 2																	
INF2130: Multimedia Authoring 1																	
INF3060: Word Processing 3																	
INF3070: Electronic Publishing 2																	
INF3080: Information Management Tools																	
INF3130: Multimedia Authoring 2																	
Theme: Applied Processing																	
INF2090: Correspondence																	
INF2100: Reports																	
INF2110: Tables/Forms																	
INF2120: Software Integration 1																	
INF3090: Software Integration 3																	
INF3100: Specialization 1																	
INF3110: Specialization 2																	
INF3120: Software Integration 2																	
Theme: Dynamic Environment																	
INF1090: Information Highway 1																	
INF2140: Process Control																	
INF2200: Information Highway 2																	
INF3140: Expert Systems																	
INF3190: Information Highway 3																	
INF3200: Internet Services																	
Theme: Programming																	
INF1080: Programming 2																	
INF2150: Programming 2																	
INF2160: Programming 3																	
INF2170: Programming 4																	
INF2180: Programming 5																	
INF3150: Programming Application 1																	
INF3160: Programming Application 2																	
INF3170: Programming Application 3																	

Provides many direct links with course content. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical contexts.

Provides some links with course content, usually through the application of related technologies and/or processes.

LINKAGES — *Information Processing in Junior High*

Course Emphasis	Information Processing Courses	Management & Marketing Courses	Communication Technology Courses	Design Studies Courses
(Theme 1) Design (3 courses)	Computer Operations <i>INF1010</i>			The Design Process <i>DES1020</i>
	Graphics Tools <i>INF1040</i>			

Course Emphasis	Information Processing Courses	Management & Marketing Courses	Communication Technology Courses	Electro-Technologies Courses
(Theme 2) Programming (4 courses)	Computer Operations <i>INF1010</i>			Digital Technology 1 <i>ELT1060</i>
	Programming 1 <i>INF1080</i>			Robotics 1 <i>ELT1130</i>

(Theme 3) Written Communications (5 courses)	Computer Operations <i>INF1010</i>	Communication Strategies 1 <i>MAM1030</i>	
	Keyboarding 1 <i>INF1020</i>		
	Word Processing 1 <i>INF1030</i>		
	Information Highway 1 <i>INF1090</i>		

Course Emphasis	Information Processing Courses	Management & Marketing Courses	Communication Technologies Courses	Design Studies Courses
(Theme 4) Visual Communication (5 courses)	Graphics Tools <i>INF1040</i>		Presentation & Comm 1 <i>COM1010</i>	The Design Process <i>DES1020</i>
	Hypermedia Tools <i>INF1070</i>		Animation 1 <i>COM1070</i>	

LINKAGES – Information Processing: Correlations with Practical Arts Courses:†
Business Education 10–20–30 and Typewriting 10–20–30

Information Processing Modules	Keyboarding 1	Keyboarding 2	Keyboarding 3	Keyboarding 4	Keyboarding 5	Keyboarding 6	Word Processing 1	Word Processing 2	Word Processing 3	Correspondence	Reports	Tables & Forms	Software Integration 1	Software Integration 2	Software Integration 3	Electronic Publishing 1	Electronic Publishing 2	Specialization 1	Specialization 2
TYPEWRITING 10-20-30																			
Module 1: Keyboarding																			
• Basic Techniques	✓	✓	✓	✓	✓	✓													
• Skill Development																			
• Production Applications																			
Module 2: Keyboarding, Centring and Tabulation																			
• Basic Techniques	✓	✓	✓	✓	✓	✓													
• Skill Development	✓	✓	✓	✓	✓	✓													
• Production Applications	✓	✓	✓	✓	✓	✓													
Module 3: Letters and Essays																			
• Basic Techniques							✓	✓	✓						✓	✓	✓		
• Skill Development							✓	✓	✓						✓	✓	✓		
• Production Applications							✓	✓	✓						✓	✓	✓		
Module 4: Reports																			
• Basic Techniques							✓	✓	✓		✓		✓	✓	✓	✓	✓		
• Skill Development							✓	✓	✓		✓		✓	✓	✓	✓	✓		
• Production Applications							✓	✓	✓		✓		✓	✓	✓	✓	✓		
Module 5: Letters and Tables																			
• Basic Techniques							✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
• Skill Development							✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
• Production Applications							✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Module 6: Manuscripts																			
• Basic Techniques								✓	✓		✓		✓	✓	✓	✓	✓		
• Skill Development								✓	✓		✓		✓	✓	✓	✓	✓		
• Production Applications								✓	✓		✓		✓	✓	✓	✓	✓		

† September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Information Processing: Correlations with Practical Arts Courses:†
Business Education 10–20–30 and Typewriting 10–20–30 (continued)

Information Processing Modules	Keyboarding 1	Keyboarding 2	Keyboarding 3	Keyboarding 4	Keyboarding 5	Keyboarding 6	Word Processing 1	Word Processing 2	Word Processing 3	Correspondence	Reports	Tables & Forms	Software Integration 1	Software Integration 2	Software Integration 3	Electronic Publishing 1	Electronic Publishing 2	Specialization 1	Specialization 2
Module 7: Tables, Business Forms and Financial Reports																			
• Basic Techniques																			
• Skill Development																			
• Production Applications																			
Module 8: Business Correspondence																			
• Basic Techniques																			
• Skill Development																			
• Production Applications																			
Module 9: Specialized Production Applications																			
• Basic Techniques																			
• Skill Development																			
• Production Applications																			
Module 10: Production Projects and Review																			
• Production Applications																			
Module 11: Professional Applications I																			
Module 12: Professional Applications II																			
• Production Applications																			
Module 13: Simulation I																			
Module 14: Simulation II																			
• Production Applications																			
BUSINESS EDUCATION 10-20-30																			
Module 12: Dicta Typing 1																			
Module 13: Dicta Typing 2																			
Module 14: Word Processing 1																			
Module 15: Word Processing 2																			
Module 16: Business Simulation																			

† September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES: Information Processing: Correlations with Practical Arts Courses:†
Computer Processing 10–20–30

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LINKAGES: Information Processing: Correlations with Practical Arts Courses:†
Computer Processing 10–20–30 (continued)

Information Processing Modules	Computer Operations	Workstation Operations	Graphics Tools	Database 1	Database 2	Spreadsheet 1	Spreadsheet 2	Hypermedia Tools	Programming 1	Programming 2	Programming 3	Programming 4	Programming 5	Programming Applications 1	Programming Applications 2	Programming Applications 3	Process Control	Expert Systems	Local Area Networks	Hardware/Software Analysis
Module 5: Applications: Computer Simulations																				
Module 6: Applications: Data Base				✓																
Module 7: Applications: Electronic Spreadsheet				✓		✓	✓													
Module 8: Overview of Introductory Programming Language									✓											
Module 9: Fundamentals of Input/ Output									✓											
Module 10: Introduction to Advanced Computer Programming Techniques									✓											
Module 11: Advanced Computer Programming Techniques											✓									
Module 12: Extended Programming Project												✓								
Module 13: Introduction to Second Programming Language													✓	✓						
Module 14: Applications in Second Programming Language														✓	✓					
Module 15: Extended Project in Second Programming Language															✓	✓				
Module 16: Graphics			✓																	
Module 17: Systems Analysis and Program Development																		✓		
Module 18: Machine/Assembly Language													✓		✓					

† September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Information Processing: Correlation with Practical Arts Courses:†

[illegible]

† September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Information Processing: Correlation with Practical Arts Courses:[†]

[illegible]

† September 1997: All practical arts courses replaced by Carcer and Technology Studies.

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t September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Information Processing: Correlation with Practical Arts Courses:†
Typewriting 10-20-30, Business Education 10-20-30 and Computer Processing 10-20-30 (continued)

[illegible]

† September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES — INFORMATION PROCESSING: *Related Occupations*

Information for this chart was obtained from the National Occupations Classification (NOC) descriptions.

Educational Requirements:

D: High School Education

C: Apprenticeship

B: College or Vocational Education

A: University

Occupation Profile	NOC#	D	C	B	A
Administrative Officer	1221	✓		✓	✓
Computer Engineer	2147				✓
Computer Operator	1421	✓		✓	
Computer Programmer	2163			✓	✓
Computer Service Technologist	2242			✓	✓
Computer Systems Analyst	2162			✓	✓
Correspondence, Publication and Related Clerk	1452	✓			
Data Entry Clerk	1422	✓		✓	
Demographer	2161				✓
Desktop Publishing Specialist	1423			✓	✓
Economist	4162				✓
Executive Assistant	1222	✓		✓	
File Clerk	1413	✓			
General Office Clerk	1411	✓		✓	
Health Record Administrator	0114			✓	
Health Record Technician	1413			✓	
Information Systems Consultant	2162				✓
Librarian	5111			✓	✓
Library Clerk	1451	✓			
Library Technician	5211			✓	
Medical Transcriptionist	1244			✓	
Office Machine Technician	2242			✓	
Receptionist	1414	✓			
Secretaries (except Legal and Medical)	1241	✓		✓	
Survey Interviewers and Statistical Clerks	1454	✓			
Typesetter and Related Occupations	1423			✓	
Typist and Word Processor Operators	1412	✓		✓	

LINKAGES – Information Processing: Summary of Post-secondary Programs *

	PUBLIC COLLEGES											APPRENTICESHIP TRADE	PRIVATE COLLEGES						TECH. INST.		UNIVERSITIES				VOCATIONAL COLLEGES								
	Alberta College of Art & Design	Fairview College	Grande Prairie Regional College	Grant MacEwan Community College	Keyano College	Lakeland College	Lethbridge Community College	Medicine Hat College	Mount Royal College	Olds College	Red Deer College	PRIVATE COLLEGES						TECH. INST.		UNIVERSITIES				VOCATIONAL COLLEGES									
												Alberta College	Augustana University College	Canadian Union College	Concordia College	King's University College, The	North American Baptist College	Northern Alberta Institute of Technology	Southern Alberta Institute of Technology	2tB (3y)	BMP hD	University of Alberta	BMP hD	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake				
Business/Business Administration and Commerce			2t	2t	2t	1t	V	1t2t	2t	D	CD		D(10 m)	1t	B	B2t	B							2tB (3y)	BMP hD	University of Alberta	BMP hD	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake
Business Administration																																	
Management																																	
Clerical																																	
Court Reporter																																	
Medical-Clerical/Medical Transcription																																	
Office Admin./Records Management																																	
Secretarial Training																																	
Word Processing/Data Entry/Microcomputer																																	
Advertising/Media Sales/Public Relations																																	
Audio and/or Visual Communications	D(4 y)			D			D	D(3y) 3t	D																								
Cinema, Radio & Television Arts				D			D		D																								
Communications Arts/Studies/Journalism Arts				D			D	1t2t	D					V																			
Printing and Graphic Arts																																	
Computer/Microcomputer Accounting				C			C	D						1t																			
Computer Applications							D	CD1t																									
Computer Maintenance/Repair																																	
Computer Management/Management Information Systems				D																													
Computer Programming (Software)																																	

* Information adapted from "It's About Time: To Start Thinking About Your Future," Advanced Education and Career Development, 1995.

LINKAGES – Information Processing: Summary of Post-secondary Programs * (continued)

	PUBLIC COLLEGES										APPRENTICESHIP TRADE						PRIVATE COLLEGES						TECH. INST.		UNIVERSITIES				VOCATIONAL COLLEGES			
	Alberta College of Art & Design	Fairview College	Grande Prairie Regional College	Grant MacEwan Community College	Keyano College	Lakeland College	Leibridge Community College	Medicine Hat College	Mount Royal College	Olds College	Red Deer College	Alberta College	Augustana University College	Canadian Union College	Concordia College	King's University College, The	North American Baptist College	Northern Alberta Institute of Technology	Southern Alberta Institute of Technology	Banff Centre	Athabasca University	University of Alberta	University of Calgary	University of Lethbridge	AVC - Calgary	AVC - Edmonton	AVC - Lac La Biche	AVC - Lesser Slave Lake				
Computer/Computing Science			1t			D		2t	CD 2t		1t		B		B1t				VD	VD	CB	BMP hD	BMP hD	BM								
Computer Marketing & Business Administration									D																							
Desktop Publishing																		C	V					4w								
Computer Engineering Technology							CD	D										D	VD			BMP hD										
Electrical/Electronic Engineering Technologies							CD											CD	D													
Telecommunications Engineering Technology																		CD	D													
Medical/Clerical																		CD	VC		C				C							
Library & Information ManagementTechnology				D															D			M										
Mathematics/Statistics/Actuarial Science		2t						1t2t	1t		2t		B	1t	B2t						B	BMP hD	BMP hD	BM								

CODES: B Bachelor's Degree D Diploma (2 years) w weeks
M Master's Degree V Varics m months
Ph.D. Doctoral Degree 1t One-year transfer y years
C Certificate (1 year or less) 2t Two-year transfer

*Information adapted from "It's About Time: To Start Thinking About Your Future", Advanced Education and Career Development, 1995.

SECTION I:

LEARNING RESOURCE GUIDE

This section of the GSI explains how to obtain up-to-date information regarding learning resources that have been identified to support the delivery of courses in this strand. It provides directions for searching, by electronic means, the most current information on:

- authorized student basic, support and authorized teaching resources—resources approved by Alberta Learning for use in this strand
- provincial software agreements—licensing agreements that allow school jurisdictions to purchase educational software at significantly reduced prices
- additional sources of information—other titles and information sources that may provide potentially useful ideas for courses in this strand.

The resource listings compiled for this strand are time sensitive and subject to change. Teachers are encouraged to browse the web sites identified in this guide on a regular basis for the most up-to-date information on new learning resources, more recent versions/editions and other sources of support.

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NOTICE

SECTION I: LEARNING RESOURCE GUIDE

Alberta Learning authorizes a variety of resources that support learning and teaching in this strand. The 1999 amendments to Section I provide directions for obtaining, by electronic means, up-to-date information about authorized resources and other sources of information.

Teachers are encouraged to browse the web sites identified in this guide on a regular basis for the most up-to-date information on:

- authorized resources; i.e., student basic, support, and authorized teaching
- provincial software licensing agreements
- additional sources of support.

The lists of authorized resources that were previously included in Section I have been removed from the 1999 amendments to this document. From 1999 onward, up-to-date listings of authorized resources are to be accessed through:

- the Learning Resources Distributing Centre *Buyers Guide*, available electronically at <<http://ednet.edc.gov.ab.ca/lrdc>>
- the Authorized Resources Database, available electronically at <<http://ednet.edc.gov.ab.ca>> under Students and Learning, Learning and Teaching Resources.

Subsequent amendments to the *Guide to Standards and Implementation* for other CTS strands will include similar changes to Section I.

LEARNING RESOURCE GUIDE

This section of the guide provides directions for obtaining, from electronic sources, up-to-date information about learning resources that support the delivery of CTS courses in this strand. Teachers may use the information to search for current listings of:

- authorized resources that support learning and teaching
 - basic learning resources
 - support learning resources
 - authorized teaching resources
- provincial software licensing agreements
- additional sources of information
 - other titles and sources that contain potentially useful information and ideas
 - web sites that may provide access to global networks of information.

Learning resources for this strand will continue to be updated in order to maintain and expand access to current information suitable for use in a variety of CTS learning environments.

CTS AND THE RESOURCE-BASED CLASSROOM

CTS supports the development of resource-based classrooms where a variety of appropriate, up-to-date print and nonprint resources are available. This approach enables students to:

- interact with a wide range of information sources
- access and use information sources appropriately
- take an active role in managing their own learning.

CTS identifies learning resources in print, software, video and CDROM formats, as well as other sources of information available in the community and through the Internet.

Collaboration between the teacher-librarian and CTS teacher in planning resource-based research activities will ensure that students develop research skills as they increase their understanding of subject content. Planned and purposeful research activities will help students learn to

gather, process and share information, and will require access to a range of current print and nonprint resources available in the school library, other libraries, the community and/or from other sources.

Teachers are encouraged to reference *Focus on Research: A Guide to Developing Students' Research Skills*, referenced in the Alberta Learning Monographs section of this guide, when planning research activities.

LEARNING RESOURCE POLICY

Alberta Learning authorizes resources considered appropriate for provincial programs of study and that have met criteria for acceptability. The authorized resources for CTS include:

- student basic—resources that address the majority of the learner outcomes in one or more CTS courses
- student support—resources that assist in addressing some of the learner outcomes of a CTS course
- authorized teaching—resources that support the implementation of one or more CTS courses and assist teachers in the instructional process.

The Learning Technologies Branch also has developed distance education materials for a number of CTS courses. These course materials, also authorized by the province of Alberta, include a range of print and electronic products that can be used to support teaching and learning in CTS.

School boards may identify and approve instructional materials for use in their schools under section 44 (2) of the *School Act*. Many school boards have delegated the power to approve resources to school staff or other board employees under section 45 (1) of the *School Act*.

For further information on resource policy and definitions, refer to the *Student Learning Resources Policy* and *Teaching Resources Policy* or contact:

Learning Resources Unit
Curriculum Standards Branch
Alberta Learning
5th Floor, Devonian Building, East Tower
11160 Jasper Avenue
Edmonton, AB, Canada T5K 0L2
Telephone: 780-422-4872 (to be connected toll free inside Alberta dial 310-0000)
Fax: 780-422-0576
Internet: <<http://ednet.edc.gov.ab.ca>>

HOW TO OBTAIN UP-TO-DATE INFORMATION

Authorized Resources

A searchable online index of all student basic, support and authorized teaching resources for courses in this CTS strand is provided through the Authorized Resources Database on the provincial web site. Each entry in the database provides bibliographic information about the resource, an annotation where appropriate, a correlation to specific one-credit courses in this strand, and information about how to obtain the resource.

The Authorized Resources Database can be accessed at <<http://ednet.edc.gov.ab.ca>>:

- click on “Students and Learning”
- select “Learning and Teaching Resources”
- then select the “Authorized Resources Database”.

When using the database to search for resources within a particular CTS strand:

- enter the strand name as the “Curricular Area”
- select the desired “Format” and “Authorization Status” from the options provided
- click on “Submit”.

The database begins each list of student basic, support and authorized teaching resources with those resources that been authorized most recently.

Upon first entering the database, the user is provided with a title and brief description of each resource, accompanied with a copyright information, authorization status, number of pages and intended use by curriculum area and grades. Then by clicking on the “More” icon, a more detailed description of each resource can be obtained, along with additional information regarding publisher/distributor, physical appearance, cost, correlation to individual CTS courses, how to obtain the resource and where the resource can be previewed.

Up-to-date information regarding the availability of distance education materials for CTS courses (i.e., print products, electronic products, products in development) can also be obtained through the web site:

- click on “Students and Learning”
- select “Learning and Teaching Resources”
- then select the “Learning Technologies Branch”.

Teachers are encouraged to browse the Authorized Resources Database and Learning Technologies Branch Homepage on a regular basis for the most up-to-date information on authorized learning resources and distance education course materials that are available.

Provincial Software Agreements

Due to frequent upgrades occurring in productivity software (e.g., software packages developed for word processing, spreadsheet, database, multimedia, drawing and design applications), this kind of software is no longer authorized by the department. However, a number of provincial licensing agreements for software products are in place that allow school jurisdictions to purchase productivity software at significantly reduced prices.

An up-to-date listing of provincial software agreements can be obtained through the “Technology” section of the web site. Teachers are encouraged to browse this listing on a regular basis for information regarding additional provincial software licensing agreements that may be established from time to time.

HOW TO ORDER AUTHORIZED RESOURCES

Most of the student basic, support and authorized teaching resources can be obtained from the Learning Resources Distributing Centre (LRDC). The LRDC *Buyer's Guide*, available in electronic or print formats, provides a complete listing of resources available for purchase and additional ordering information. The LRDC can be contacted at:

12360 – 142 Street
Edmonton, AB, Canada T5L 4X9
Telephone: 780-427-5775 (to be connected toll free inside Alberta dial 310-0000)
Fax: 780-422-9750
Internet: <<http://ednet.edc.gov.ab.ca/lrdc>>.

It is recommended that all resources be previewed prior to purchase. In some instances, teachers may find it desirable to purchase one copy for their reference and additional copies as required.

ADDITIONAL SOURCES OF INFORMATION

There are many additional sources of information—other titles, and information available from government, professional associations, industry organizations and community agencies—that may provide potentially useful ideas for courses in this strand. Of further note are a number of web sites relevant to courses in this strand, which when used effectively, can provide both teachers and learners with a global network of useable information.

The responsibility to evaluate these additional sources of information prior to selection rests with the user, in accordance with any existing local policy.

CTS Council

An online listing of additional sources of information relevant to courses in this strand is available on the CTS Council web site at <<http://ctscouncil.com>>. This site can be accessed through the CTS homepage by going to “Related Sites”.

Each entry in this listing includes the name of the resource or agency/organization, appropriate distributor/contact information, and where possible a description of the materials/services available.

The CTS Council welcomes your suggestions for maintaining and expanding the sources of information that are shared through this site.

Telus 2Learn Alliance

A searchable online listing of web sites containing information and materials relevant to courses in this strand is available through the Telus 2Learn Alliance at <<http://www.2Learn.ca>>. This site can also be accessed through the CTS homepage by going to “Related Sites”.

The Telus 2Learn Alliance welcomes your feedback and ideas on these and other sites relevant to courses in this strand.

OTHER SOURCES OF SUPPORT

ACCESS: The Education Station

ACCESS: The Education Station offers a variety of resources and services to teachers. For a nominal dubbing and tape fee, ACCESS: The Education Station will copy audiotapes and videotapes for teachers.

ACCESS: The Education Station publishes listings of audiocassettes and videocassettes as well as a comprehensive programming schedule. For further information, visit their web site at <<http://www.accesstv.ab.ca>>.

National Film Board of Canada

The National Film Board of Canada (NFB) has numerous audiovisual resources that may be suitable for use in CTS courses. While these resources can be ordered directly from the NFB, many of their materials are also available in public libraries.

For a list of NFB audiovisual resources indexed by title and subject, or to place an order for audiovisual resources, visit their web site at <<http://www.nfb.ca>>.

Media and Resource Centres

There are a number of urban media and regional resource centres across the province that provide on a loan basis instructional materials that may support CTS courses. Teachers are encouraged to contact their local media or resource centre for further information regarding services that are available.

Urban Media Centres

Calgary Board of Education
Calgary, AB, Canada
Web site: <www.cbe.ab.ca>

Calgary Separate School Board
Calgary, AB, Canada
Web site: <www.crcssd1.calgary.ab.ca>

Edmonton Catholic School District
Edmonton, AB, Canada
Web site: <www.ecs.edmonton.ab.ca>

Edmonton Public School Board
Edmonton, AB, Canada
Web site: <www.epsb.edmonton.ab.ca>

Elk Island Public School Division
Sherwood Park, AB, Canada
Web site: <www.ei.educ.ab.ca>

Medicine Hat School District
Medicine Hat, AB, Canada
Web site: <www.sd76.ab.ca>

Northern Lights School Division
Spirit River, AB, Canada
Web site: <www.nlsd.ab.ca>

Red Deer Public School District
Red Deer, AB, Canada
Web site: <www.rdpsd.ab.ca>

Regional Resource Centres

Zone 1
Zone One Regional Resource Centre
Peace River, AB, Canada
Web site: (not yet available)

Zone 2/3
Central Alberta Media Services
Sherwood Park, AB, Canada
Web site: <www.cams.ab.ca>

Zone 4
Parkland Regional Library
Lacombe, AB, Canada
Web site: <www.prl.lacombe.ab.ca>

Zone 5
South Central Alberta Resource Centre
Strathmore, AB, Canada
Web site: (available in September 1999)

Zone 6
Southern Alberta Learning Resource Centre
Lethbridge, AB, Canada
Web site: (available in July 1999)

Alberta Learning Monographs

The following monographs are available for purchase from the Learning Resources Distributing Centre. Refer to the "Support Documents" section or the "Legal, Service and Information Publications" section in the LRDC *Buyers Guide* for ordering information and costs.

- *The Emerging Student: Relationships Among the Cognitive, Social and Physical Domains of Development*, 1991 (LRDC Product No. 161555)

This document examines the child, or student, as a productive learner, integrating all the domains of development: cognitive, social and physical. It emphasizes the need for providing balanced curriculum and instruction.

- *Students' Interactions Developmental Framework: The Social Sphere*, 1988 (LRDC Product No. 161399)

This document examines children's perceptual, structural and motor development and how such physical development affects certain learning processes.

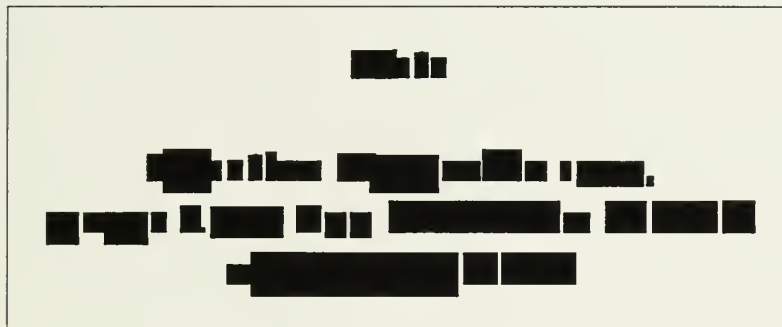
- *Focus on Research: A Guide to Developing Students' Research Skills*, 1990 (LRDC Product No. 161802)

This document outlines a resource-based research model that helps students manage information effectively and efficiently, and gain skills that are transferable to school and work situations. This model provides a developmental approach to teaching students how to do research.

- *Teaching Thinking: Enhancing Learning*, 1990 (LRDC Product No. 161521)

Principles and guidelines for cultivating thinking, ECS to Grade 12, have been developed in this resource. It offers a definition of thinking, describes nine basic principles on which the suggested practices are based, and discusses possible procedures for implementation in schools and classrooms.

[The 1997 text was deleted September 1999.]



INFORMATION PROCESSING

SECTION J: SAMPLE STUDENT LEARNING GUIDES

The following pages provide background information, strategies and a template for developing student learning guides. Also included at the end of this section are several sample student learning guides for Information Processing.

A student learning guide provides information and direction to help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher.

Many excellent student learning guides (SLGs) are available for use and/or are in the process of being developed. While Alberta Education provides a development template accompanied by some samples, most student learning guide development is being done by individuals and organizations across the province (e.g., school jurisdictions, specialist councils, post-secondary organizations). Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 11) for further information regarding student learning guide developers and sources.

Note: A student learning guide is not a self-contained learning package (e.g., Distance Learning Module), such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

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BACKGROUND INFORMATION

A Student Learning Guide (SLG) is a presentation of information and direction that will help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher. A SLG is not a self-contained learning package such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

Each SLG is based on curriculum and assessment standards as defined for a particular CTS module. Curriculum and assessment standards are defined in this document through:

- module and specific learner expectations (Sections D, E and F)
- assessment criteria and conditions (Sections D, E and F)
- assessment tools (Section G).

The SLG is written with the student in mind and makes sense to the student in the context of his or her CTS program. SLGs are designed to guide students through modules under the direction of the teacher. They can be used to guide:

- an entire class
- a small groups of students
- individual students.

In some instances, the Student Learning Guide may also be used as teacher lesson plans. When using SLGs as teacher lesson plans, it should be noted that they tend to be:

- learner-centred (versus teacher-directed)
- activity-based (versus lecture-based)
- resource-based (versus textbook-based).

Components of a Student Learning Guide

The student learning guide format, as developed by Alberta Education, typically has *seven* components as described below.

1. *Why Take This Module?*

This section provides a brief rationale for the work the student will do, and also establishes a context for learning (i.e., in relation to the strand, a life pursuit, a specific industry, etc.).

2. *What Do You Need To Know Before You Start?*

In this section, prerequisite knowledge, skills and attitudes considered necessary for success in the module are identified. Prerequisites may include other modules from within the strand or from related CTS strands, as well as generic knowledge and skills (e.g., safety competencies, the ability to measure/write/draw, prior knowledge of basic information relevant to the area of study).

3. *What Will You Know And Be Able To Do When You Finish?*

This information must parallel and reflect the curriculum and assessment standards as defined for the module. You may find it desirable to rewrite these standards in less formal language for student use.

4. *When Should Your Work Be Done?*

This section provides a timeline that will guide the student in planning their work. The timeline will need to reflect your program and be specific to the assignments you give your students. You may wish to include a time management chart, a list of all assignments to be completed, and instructions to the student regarding the use of a daily planner (i.e., agenda book) to organize their work.

5. *How Will Your Mark For This Module Be Determined?*

This section will interpret the assessment criteria and conditions, assessment standards, assessment tools and suggested emphasis as defined for the module within the context of the projects/tasks completed. Accepted grading practices will then be used to determine a percentage grade for the module—a mark not less than 50% for successful completion. (**Note:** A module is

“successfully completed” when the student can demonstrate ALL of the exit-level competencies or MLEs defined for the module.)

6. *Which Resources May You Use?*

Resources considered appropriate for completing the module and learning activities are identified in this section of the guide. The resources may be available through the Learning Resources Distributing Centre (LRDC) and/or through other agencies. Some SLGs may reference a single resource, while others may reference a range of resources. Resources may include those identified in the Learning Resource Guide (Section I) as well as other sources of information considered appropriate.

7. *Activities/Worksheets*

This section provides student-centred and activity-based projects and assignments that support the module learner expectations. When appropriately aligned with curriculum and assessment standards, successful completion of the projects and assignments will also indicate successful completion of the module.

Strategies for Developing Student Learning Guides

Prior to commencing the development of a student learning guide, teachers are advised to obtain:

- the relevant Guide to Standards and Implementation
- the student learning guide template.

Information communicated to the student in the SLG must parallel and reflect the curriculum and assessment standards as defined for the module. Therefore, critical elements of the Guide to Standards and Implementation that need to be addressed throughout the SLG include:

- module and specific learner expectations
- assessment criteria and conditions
- assessment standards
- assessment tools.

Additional ideas and activities will need to be incorporated into the student learning guide. These can be obtained by:

- reflecting on projects and assignments you have used in delivering programs in the past
- identifying human and physical resources available within the school and community
- networking and exchanging ideas (including SLGs) with other teachers
- reviewing the range of resources (e.g., print, media, software) identified in the Learning Resource Guide (Section I) for a particular module/strand.

Copyright law must also be adhered to when preparing a SLG. Further information and guidelines regarding copyright law can be obtained by referring to the:

- *Copyright Act*
- *Copyright and the Can Copy Agreement.*

A final task in developing a student learning guide involves validating the level of difficulty/challenge/rigour established, and making adjustments as considered appropriate.

A template for developing student learning guides, also available on the Internet, is provided in this section (see “Student Learning Guide Template,” pages J.5–10). Several sample student learning guides are also provided in this section (see “Sample Student Learning Guides,” starting on page J.11).

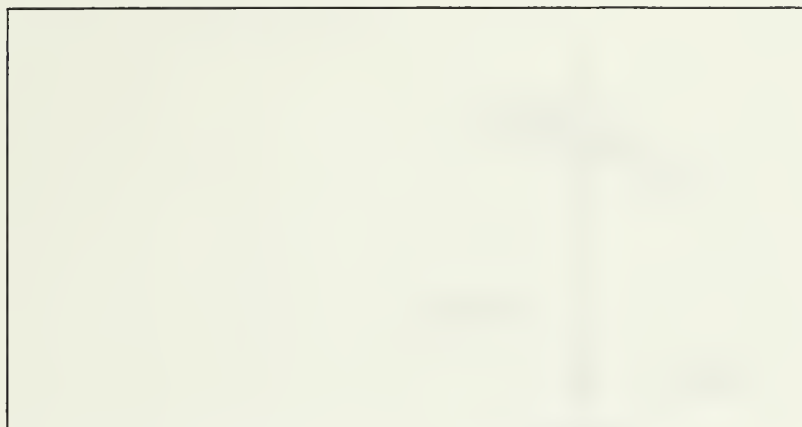
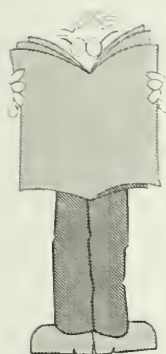
CAREER & TECHNOLOGY STUDIES



SAMPLE STUDENT LEARNING GUIDE TEMPLATE

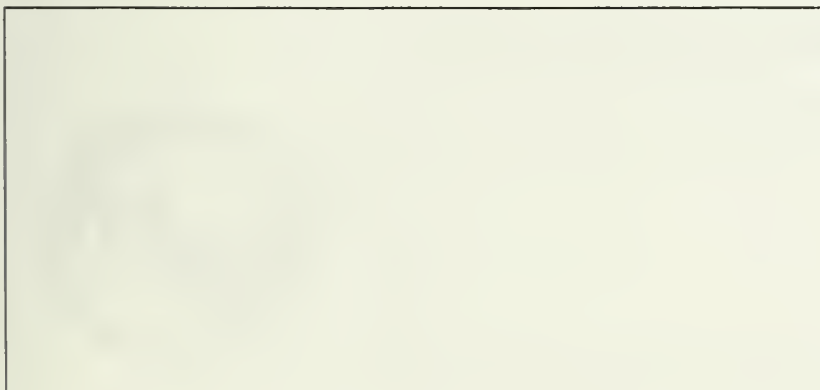
WHY

TAKE THIS MODULE?



WHAT

**DO YOU NEED TO KNOW
BEFORE YOU START?**



WHAT

**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

-
-
-
-
-
-
-
-

WHEN

SHOULD YOUR WORK BE DONE?



HOW

**WILL YOUR MARK FOR THIS
MODULE BE DETERMINED?**

	PERCENTAGE



WHICH

RESOURCES MAY YOU USE?



<ul style="list-style-type: none">••••••

ACTIVITIES/WORKSHEETS



CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

SAMPLE STUDENT LEARNING GUIDE

INF1020 Keyboarding 1



WHY

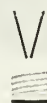
TAKE THIS COURSE?

- Keyboarding skills provide you with the licence and ability to travel the “high-tech information highway” with speed and accuracy!
- Use your keyboarding skills to make written assignments (in school, university, college or on the job) easier to do, and to earn higher marks for work that is neatly and accurately prepared and printed.
- The ability to touch keyboard quickly and accurately will enhance your daily living skills and may open doors to many different career opportunities for you.
- Increase your efficiency in using the workstation equipment and resources.
- Improve your ability in basic competencies including managing your learning and resources, communicating effectively and demonstrating responsibility.

WHAT

DO YOU NEED TO KNOW BEFORE YOU START?

It is recommended that you are able to demonstrate the exit-level competencies defined in INF1010: Computer Operations.



WHAT

**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

Upon completion of this module you will be able to:

- demonstrate keyboarding competence:
 - text entry at 20 words per minute (wpm)
 - numeric entry at 80 keystrokes per minute (kpm)
 - technique
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

WHEN

SHOULD YOUR WORK BE DONE?

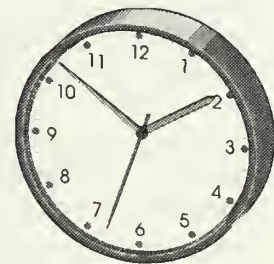
Use the timelines shown below to help you schedule your time. Prepare a workplan outlining when you will complete the tasks listed below. Submit this workplan to your teacher for approval. Remember you should use your time and resources as efficiently as possible so that you can complete the module and move onto other opportunities to develop your skills and abilities. You may find that you need less time or more time than is indicated. If you need to adjust your workplan, be sure to consult your teacher.

TASK 1: 15 hours (alphabet and build speed and accuracy)

TASK 2: 5 hours (keypad numbers)

TASK 3: 5 hours (punctuation)

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.



HOW

WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
<p>You must first demonstrate all of the competencies required for this module.</p> <p>When you have done this, your percentage mark for the module will be determined as follows:</p> <ul style="list-style-type: none"> • TASK 1–3: ASSIGNMENTS—drills for developing speed and accuracy on alphabetic, punctuation and numeric keys • TASKS 1 & 3: TEST—enter alphabetic text and basic punctuation keys (.,:;?) at a minimum of 20 words per minute in three timed attempts from straight-copy material with a maximum of one uncorrected error (<i>see Reference Chart: Keyboarding and Numberpad Rates</i>) • TASK 2: TEST—enter numbers on the numeric keypad at a minimum of 80 keystrokes per minute in three timed attempts from straight-copy material of 1 to 3 digit numbers, with a maximum of one uncorrected error (<i>see Reference Chart: Keyboarding and Numberpad Rates</i>) • Consistently demonstrate appropriate fingering, posture and eye focus. Teacher will observe your technique during timings and drills (<i>see Assessment Checklist: Text–Data Entry for standard</i>) • Consistently demonstrate appropriate workstation routines (<i>see Workstation Routines and Management for standard</i>) • Demonstrate effort to manage your learning and resources, communicate effectively and demonstrate responsibility 	<p>30%</p> <p>20%</p> <p>10%</p> <p>30%</p> <p>10%</p> <p><i>basic competency reference guide</i></p>



WHICH

RESOURCES MAY YOU USE?



- Text: Ubelacker, Guest and McConaghy, *Mastering Keyboarding Skills 1*, 2nd Edition. Toronto: Copp Clark Pitman Ltd., 1989.
- Software: Type! Broderbund Software, Inc. 1989.
- Drill book: Lloyd, Winger, *Typing Power Drills*. McGraw-Hill Ryerson Limited, Toronto, 1985.

ACTIVITIES/WORKSHEETS

BACKGROUND

WORKSTATIONS

With the assistance of your teacher, become familiar with all aspects of your workstation so that you will be comfortable starting up, working on and closing down programs and equipment at the end of each learning session.

Some things you will need to know:

- are you using a networked or stand-alone computer system?
- how do you turn on your equipment?
- how do you log in to the system?
- what programs will you be using?
- how do you load, use, exit or quit the programs you will be using?

Once you are familiar with and comfortable with the “mechanics” of your workstation, you will be ready to roll.

RESPONSIBILITY:

Remember, it is your responsibility to keep your station tidy, books in place and equipment properly turned off at the end of your session. It is also your responsibility to accurately complete all assignments within the time frame.

INFORMATION PROCESSING

INF1020 Keyboarding 1

SOFTWARE INFORMATION/INSTRUCTIONS

Attached to this student guide is a learning package with instructions for using the selected software tutorial package (TYPE! by Broderbund) to learn the alphabetic keyboard (A through Z) and to apply correct keyboarding techniques and skills in order to achieve 20 words per minute.

Also included are instructions for using the specified word-processing software package (WordPerfect 5.1 for DOS), to learn, review and reinforce the alphabetic keyboard (A through Z); and basic punctuation (.,:;?); and numbers using the keypad.

TASK 1: USE TYPE! TO LEARN THE ALPHABETIC KEYBOARD (A through Z)

GOAL -- ability to accurately key in alphabetic letters (A-Z) at a minimum of 20 words per minute.

Read the material in the TYPE! information sheets included in this package. (Information Sheet No. 1.) These sheets will help you get started using the TYPE! program. If you have any questions, discuss them with your teacher before starting the program. Complete the drills and exercises in the TYPE! on-line tutorial.

Continue to work on the TYPE! Build Speed and Accuracy and Special Exercises until you have achieved your goals of mastery of the alphabet keys at 20 wpm.

TASK 2: USE WORDPERFECT 5.1 FOR DOS TO LEARN NUMBERS FROM THE KEYPAD

GOAL -- ability to accurately key in numbers 1-9 at a minimum of 80 keystrokes per minute.

(Note: The TYPE! program teaches numbers from the top row of the keyboard, and teaches them in conjunction with punctuation and alphabetic letters, so you will switch to WordPerfect to drill on keypad numbers.)

Read the material in the WORDPERFECT information sheets included in this package. These sheets give an overview of the WordPerfect function keys you will be using for this module. If you have any questions, discuss them with your instructor before starting the program.

EXERCISES Text: *Mastering Keyboarding Skills 1* (2nd Edition), pages 332-333

Read and follow the instructions in the textbook. Repeat the exercises until you have achieved a rate of 80 keystrokes per minute.

Additional Practice exercises:

Text: *Typing Power Drills*, page 29, drill #57; page 33, drill #62, page 34, drill #64. (Additional practice may be found in business calculation texts.)

You must take three one-minute timings over no more than five class periods to demonstrate touch keyboarding competency of 80 keystrokes a minute with no more than one error. Let your teacher know when you are ready for this keyboarding assessment.

TASK 3: PUNCTUATION (.,,:?) Using WORDPERFECT for DOS 5.1

EXERCISES Text: *Mastering Keyboarding Skills 1* (2nd Edition)

Semicolon	Lesson 1, page 6
Comma	Lesson 5, page 14
Period	Lesson 6, page 16
Colon	Lesson 18, page 42
Question Mark	Lesson 18, page 42

Text: *Typing Power Drills*

Semicolon	drill 78, page 46
Colon	drill 79, page 46
Question Mark	drill 84, page 47

INFORMATION PROCESSING

INF1020 Keyboarding 1

INFORMATION SHEET #1

USING TYPE!

Start up your computer and log into your system.

STOP!

You will require a **FORMATTED DATA DISK** on which to store your results. If you do not already have a formatted disk, prepare one now.

Insert your formatted data disk in the appropriate drive, then select the **TYPE!** program from your main menu.

- Press **ENTER** to go to the **TYPE!** Main Menu
- With the cursor located by the first item in the main menu, Introduction to the Keyboard, press **ENTER** again. Take the time to look over the different parts of the screen, and notice that your instructions appear at the bottom of the screen. Work through Introduction to the Keyboard; this should not take longer than 10 minutes. When you are finished the introduction to the keyboard, you will be returned to the **TYPE!** main menu.

NB: If you forget which fingers belong to which keys, refer to the keyboard/fingering chart included in this package.

NB: Be sure that your **CAPS LOCK** is **OFF!** If you get arrows under the letters as you type them it may be because you have your caps lock on. These arrows also indicate keystroke errors. You cannot correct as you type, but if you really mess up, you can press **ESC** to stop the exercise.

- With the **TYPE!** Main Menu showing on your screen, move the cursor down next to the words Keyboard Basics, and press **ENTER** to select the exercises for the letters of the alphabet.
- Take a minute to become familiar with the information on your screen.

The top left portion of the screen shows a "keyboard." As you type, the letters that you type will appear on this keyboard. The program will track your progress, and as you achieve your goals it will automatically introduce additional letters, until you have covered all of the alphabet keys to the level of 20 words per minute.

The top right portion of the screen will keep track of your speed and accuracy **GOALS** as well as your **ACTUAL** speed and accuracy. It will also let you know which letters you type incorrectly—and keeps track of your "weak" letters.

At the bottom of the screen you will see the words **CURRENT LESSON**. Also displayed are all the letters of the alphabet.

INFORMATION PROCESSING

Word Processing 1 (INF1030)

START YOUR DRILLS with the cursor under the letter A, by pressing ENTER. Continue to work on Keyboard Basics each day until you have achieved a speed of 20 words per minute for all of the letters of the alphabet. **You must take three one-minute timings over no more than five class periods to demonstrate touch keyboarding competency of 20 words a minute with no more than one error. Let your teacher know when you are ready for this keyboarding assessment.**

There will be several sets of exercises. As you complete each practice line, the results display in the top right corner of your screen. When you have completed a set of exercises, check your overall results.

You may get a **Recommended Exercise:** message. If this message appears, check the menu at the bottom of your screen. You can choose to continue with your current lesson by pressing ENTER, or go to the recommended exercise by moving the cursor to the words “recommended exercise” and pressing ENTER.

If you want to see a breakdown of your results at the end of a training session, select **Display Graphs** from the menu at the bottom of the screen. Read each graph screen carefully, they are self-explanatory!

There are graphs for **results by letter group; results for each finger; alphabet; numbers and symbols; and an error analysis.** You can move from graph to graph by pressing ENTER. Once you have worked your way through the graphs, press ESC (escape on your keyboard) to exit the graphs windows.

AT ANY TIME YOU WANT TO GO BACK TO THE TYPE! MAIN MENU, PRESS ESC.

To QUIT the TYPE! program, press ESC to go the TYPE! Main Menu, then press Q (for Quit) and Y (for yes). This will return you to your station main menu.

CAREER & TECHNOLOGY STUDIES

INFORMATION PROCESSING

SAMPLE STUDENT LEARNING GUIDE

INF1030 Word Processing 1



TAKE THIS COURSE?

- Keyboarding skills provide you with the licence and ability to travel the “high-tech information highway” with speed and accuracy!
- Use your keyboarding skills to make written assignments (in school, university, college or on the job) easier to do, and to earn higher marks for work that is neatly and accurately prepared and printed.
- The ability to touch keyboard quickly and accurately will enhance your daily living skills and may open doors to many different career opportunities for you.
- Increase your efficiency in using the workstation equipment and resources.
- Improve your ability in basic competencies including managing your learning and resources, communicating effectively and demonstrating responsibility.

DO YOU NEED TO KNOW BEFORE YOU START?

It is recommended that you are able to demonstrate the exit-level competencies defined in INF1010: Computer Operations.



WHAT

**WILL YOU KNOW AND
BE ABLE TO DO
WHEN YOU FINISH?**

Upon completion of this module you will be able to:

- demonstrate correct use of software functions, by producing mailable, properly formatted:
 - paginated reports with headings and references
 - letters with basic components
 - two-column tables with main headings and subheadings
- apply, consistently, appropriate workstation routines
- demonstrate basic competencies.

WHEN

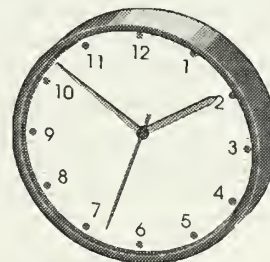
SHOULD YOUR WORK BE DONE?

Use the timelines shown below to help you schedule your time. Prepare a workplan outlining when you will complete the tasks listed below. Submit this workplan to your teacher for approval. Remember you should use your time and resources as efficiently as possible so that you can complete the module and move onto other opportunities to develop your skills and abilities. You may find that you need less time or more time than is indicated. If you need to adjust your workplan, be sure to consult your teacher.

TASK 1: approximately 16 hours

TASK 2: approximately 9 hours.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.



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HOW

WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
<p>You must first demonstrate all of the competencies required for this module.</p> <p>When you have done this, your percentage mark for the module will be determined as follows:</p> <p>TASK 1: WordPerfect 6.0 DOS functions -Teacher will review Disk/Printout, work will be approved/not approved</p> <p>TASK 2: production of accurate and well-formatted:</p> <ul style="list-style-type: none">• letters• reports• tables <p>focusing on personal use and demonstrating the use of the software functions learned in Task 1 (<i>see assessment checklist: Word Processing for standard</i>)</p> <ul style="list-style-type: none">• consistently demonstrate appropriate workstation routines (<i>see Workstation Routine and Management Checklist for standard at introductory level</i>)• demonstrate effort to manage your learning and resources, communicate effectively and demonstrate responsibility	<p>30</p> <p>20</p> <p>20</p> <p>20</p> <p>10</p> <p><i>basic competency reference chart</i></p>



WHICH

RESOURCES MAY YOU USE?



- WordPerfect 6.0 for DOS software.
- Mastertrax, The Learning Advantage. *WordPerfect for DOS Version 6.0, Manual Level 1, 1870* (CCI Computer Courseware International).
- Ubelacker, Guest and McConaghy. *Mastering Keyboarding Skills 1*, 2nd Edition.
- Work assigned in other courses.
- Handouts provided with this student guide.

ACTIVITIES/WORKSHEETS

TASK 1: Obtain the CCI *WordPerfect for DOS Version 6.0 Manual 1870* textbook. The textbook has a prepared data disk with documents that you will retrieve and work on when performing the exercises. With the assistance of your instructor, determine where these documents are located, and whether you will be copying them to your own prepared data disk, or using them from the fileserver. Be sure to save the revised documents to your own formatted data disk.

Complete all of the exercises in the manual, saving your work, to hand in to your teacher.

TASK 2: Additional information and worksheets are provided to develop skills in preparation of reports, letters and two-column tables. Complete all of the tasks outlined on the worksheets, referring to the textbook, Ubelacker, Guest and McConaghy *Mastering Keyboard Skills 1* (2nd Edition) **or** produce documents for your own personal use by integrating the work from other courses in completing this task (see information sheets for suggested formatting instructions).

Put together a collection of your work to be assessed including accurate and well-formatted letters, reports and tables that demonstrate the use of basic software functions.

Ongoing **Assessment of workstation:** you will be observed during the learning period regarding workstation routines and management.

APPLICATION EXERCISES

REPORTS

LETTERS

TABLES

NB: Read and follow the formatting instructions included with each set of instructions very carefully. Refer to the examples included in this package.

PRODUCTION EXERCISES – REPORTS

TEXT: Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

NB: SPELL CHECK AND PROOFREAD EVERY DOCUMENT BEFORE SAVING

PAGE(S)	PROD. NO.	INSTRUCTIONS
250–251		<p>REPORT</p> <p>Ubelacker text, page 246—SUMMARY OF EDITORS' MARKS (Proofreaders' Marks), read and refer to these editing marks whenever necessary.</p> <p>FORMATTING GUIDE for REPORTS - read and refer to the formatting instructions that follow in this manual and use these formatting guidelines for all reports.</p> <p><u>Line Length</u>: Use the default settings (60 space line, Left and Right Margins 10).</p> <p><u>Header</u>: Create a HEADER for each report that has the title of the report flush left and the pages automatically numbered flush right. Suppress the Header for the first page only.</p> <p>Place the CURSOR AT THE TOP OF THE FIRST PAGE then: Press Shift+F8, P, H, A, P, this will bring up the HEADER editing screen; Type the name of the report at the left margin, then press Alt+F6 to place the cursor at the right margin and type the word Page leave one spacebar space, then hold down the Ctrl key and press the letter B, which will automatically number the pages starting with page one, then press Enter once to insert an extra blank line.</p> <p>Press F7 once, this will bring back the formatting menu, then type u for suppress (this page only); and then press 1 to suppress all headers, footers and page numbering for this page one. (The header is only visible in PRINT and VIEW) and the code is visible in reveal codes (F11).</p>

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250-251 cont'd	<p>✎ Type the TITLE of the report in ALL CAPITAL LETTERS on Ln 7 on the first page by pressing Enter 6 times (this places your title on the first page of a report on line 13 or 2" from the top edge of the page).</p> <p>✎ Triple Space (enter 3 times) after the title.</p> <p>✎ Set for Double Spacing for the body of the report. (Shift+F8, L, S, 2, F7)</p> <p>✎ Use AUTOWRAP at the ends of the lines in the body of the report, do not press enter unless you are starting a new paragraph. TAB in once to have the first line of each new paragraph start 5 spaces in from the left margin.</p> <p>✎ Pages will break automatically as they fill. Page breaks show on the monitor as a single line of dashes. Start each new page on Ln 1, right below the soft page break line of dashes. This places your text 1" from the top edge of the paper, and leaves space for your Header to appear in the top margin.</p> <p>✎ If you have a single line of text or a side heading that you want to have appear on the next page instead of at the bottom of the current page, a page break can be forced with CTRL+Enter—represented by a double line of dashes</p> <ul style="list-style-type: none">• Name and Save as R250.
290-291	<p>REPORT with a FOOTNOTE (Try something new—FOOTNOTE FEATURE!)</p> <ul style="list-style-type: none">• Use the WordPerfect FOOTNOTE feature (Ctrl+F7).• Refer to the formatting instructions for the above report (page 250-251), and your formatting notes in this package.• Name and Save as R290

PRODUCTION EXERCISES -- LETTERS

Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

NB: SPELL CHECK AND PROOFREAD EVERY DOCUMENT BEFORE SAVING

PAGES	PROD. NO.	INSTRUCTIONS
173		<p>FULL BLOCKED FORMAL BUSINESS LETTERS WITH MIXED PUNCTUATION IN DISPLAY LINES</p> <ul style="list-style-type: none"> • Set your Left Margin at 15 spaces and your Right Margin at 15 spaces. • Press Enter enough times to place your cursor on Ln 9 (check your Ln #). This is the 15th line from the top of the page. • Use the DATE TEXT CODE to place the current date in your letter on line 9. (Shift+F5, T) • Enter 4–6 times after the Date and type in the mailing address (the name and address of the person the letter is going to). • Enter twice (double space) to the Salutation. Type the salutation followed by a colon (:); do not leave any spaces between the last letter of the salutation and the colon.

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173 cont'd	<ul style="list-style-type: none">• Enter twice (double space) and type the body of the letter. Single space the body of the letter, use AUTOWRAP at the end of the lines (do not press enter); do NOT Tab the first line of each paragraph; press Enter twice (double space) to start a new paragraph.• Enter twice (double space) to the Complimentary Closing. Type the closing, capitalizing only the first letter of the first word, e.g.: Yours truly, and follow with a comma.• Press Enter 4-6 times and type the Signature Block.• Press Enter twice and type YOUR INITIALS, you are the typist -- do not type the initials that are in the textbook.• Read all letters carefully, if there are any references to ENCLOSURES (or attachments), enter twice after your initials, and type in the Enclosures notation.• Your letter should look similar to the sample you are typing on page 173, but the lines in the body of your letter may not be exactly the same because you are using AUTOWRAP!• Name and Save as L173
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189	1	<p>FULL BLOCKED FORMAL BUSINESS LETTER WITH MIXED PUNCTUATION IN DISPLAY LINES</p> <ul style="list-style-type: none"> • Complete the letter following proper formatting rules • Name and Save as L189-1
201	2	<p>FULL BLOCKED FORMAL BUSINESS LETTER with ENUMERATIONS</p> <p>NB: This letter is not in proper letter format, and there are missing letter parts. Refer to page 200 for an example of a properly formatted letter.</p> <ul style="list-style-type: none"> • Follow the formatting rules for FULL-BLOCKED letters with MIXED PUNCTUATION and formatting rules for ENUMERATIONS within the letter (setting a tab and using the INDENT key F4) • Name and Save as B201-2
216	2	<p>FULL-BLOCKED FORMAL BUSINESS LETTER</p> <ul style="list-style-type: none"> • Type this letter using proper format and including any missing letter parts. Read the letter carefully. Use your own initials and include any enclosure notations. • Name and Save as B216-2

PRODUCTION EXERCISES – TABLES

TEXT: Mastering Keyboarding Skills 1, Ubelacker, Guest & McConaghy

NB: SPELL CHECK AND PROOFREAD EVERY DOCUMENT BEFORE SAVING

PAGE(S)	PROD. NO.	INSTRUCTIONS
		NB: USE THE WORDPERFECT TABLES FEATURE FOR THE FOLLOWING EXERCISES
100	1	✓ CAPITALIZE all letters in the TITLE
120	1	✓ CENTRE the headings over the columns
127	1	✓ CENTRE the headings over the columns
130	1	✓ CENTRE the headings over the columns, and SET A DECIMAL TAB for the COST column (which contains amounts of money)

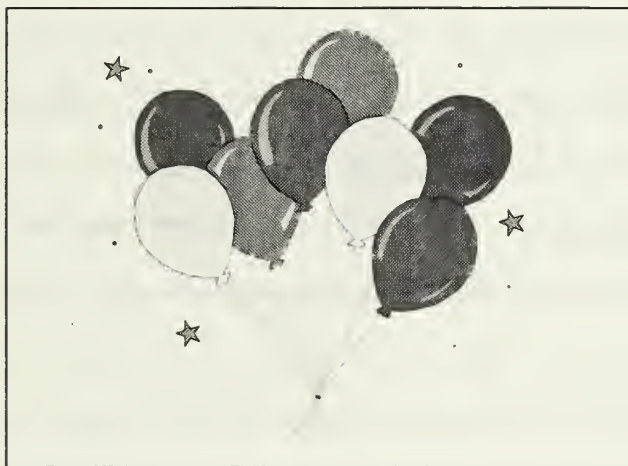
INFORMATION PROCESSING

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EXAMPLES: REPORT

LETTER

TABLE



INFORMATION PROCESSING

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FORMATTING GUIDE FOR REPORTS AND ESSAYS (TITLE Ln 7)

General Instructions
by Rhoda Cucheran

(one blank linespace)
(subheading)

(two blank linespaces)

Header

(sideheading)

The **FIRST CODE** that should appear in your reveal codes when you create a report is your **HEADER** code. Reports have **HEADERS** that are **SUPPRESSED** for the first page and contain the **TITLE** of the report typed at the **LEFT MARGIN** and the automatic **PAGE # (Page ^B) FLUSH RIGHT**. When you create a header, you are temporarily placed in a header editing screen. This is where you type the information that you want to appear in your header, the **TITLE (left flush, all capital letters)**, and the **automatic page numbering code (Page ^B)**. Press **ENTER ONCE** after typing in the page code in order to create a larger space for your header.

Suppressing headers for the first page

EXIT (F7) back to the Page Format Menu in order to **SUPPRESS** the header for the first page. You "suppress" (do not have it print) your header because you do not want both a header and a title on the first page. The choice you make from the suppress header menu is usually the first one, to suppress all headers, footers and page numbers. Even though you suppress the header for the first page the second page will automatically be numbered Page 2.

Report Title

(sideheading)

The **TITLE** of the report is typed in **ALL CAPITAL LETTERS**, and centred on the first page at **Ln 7** on the monitor Line indicator. If you have a subtitle, double space (leave one blank linespace) between the title and the subtitle. **TRIPLE SPACE** down to the body of the report.

Body of the Report - Linespacing

Before starting to type the **BODY** of your report, **set your linespacing to 2 (for double spacing)**. You will see instructions in typing books that require you to triple space before sideheadings and double space the rest of the report. You have a choice—you may switch back and forth between triple and double spacing, or you may triple space after the title and double space the balance of the report.

Body of the Report – Margins

The **LEFT AND RIGHT MARGINS** are the default settings of **10 Left and 10 Right**. The first line on page 2 of the report, and on all subsequent pages, is typed at **Ln 1** on the monitor line indicator.

Autowrap

Use **AUTOWRAP**, that is, as you type the body of your report let the words wrap at the right margin. Autowrap is indicated by the [SRt] code in **REVEAL CODES**. Only press enter when you want to start a new paragraph, enter is represented in reveal codes as [HRt]. Paragraphs are tabbed in 5 spaces.

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Page Breaks

WordPerfect inserts page breaks automatically as the pages are filled. Reveal codes displays automatic page breaks as [SPg]. These page breaks are displayed on the edit screen as single lines of dashes. If you choose to force a page break, you can press **CRTL+Enter**, which puts the code [HPg] in your reveal codes.

The **BOTTOM MARGIN** should remain set at 6 linespaces (1") for all pages. Text will automatically adjust to fit the pages.

Quotations and Special Displays

Single space all special displays, such as subheadings that take two lines, footnotes, enumerations or listings. Single quotations are placed in quotes (" ") within the double spaced text, as shown here. "This is a very short quotation. It has three or fewer short lines and is built right into the double spaces text. Quotation marks are placed at the beginning and end of the quote."¹ Long quotations should be single spaced and indented 5 spaces from both margins, as follows:

This is a longer quotation (let's pretend). In order to get it to **INDENT 5 spaces from BOTH margins**, press **Shift+F4**. The quotation will automatically wrap in five spaces from both the left and the right margins. This type of quotation does not have quotation marks around it.²

¹Abernethy, John, Quotations for Reports, Random House, 1929, p.234

²*ibid.*, p.432

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Enumerations

Use the **INDENT (F4)** key for enumerations, and set the tab for Absolute 14. This places your indented text 4 spaces in from the left margin.

1. This is an enumeration. The number appears at the left margin and the text starts in 4 spaces from the left margin. The enumeration is single spaced. If you have more than one enumeration, double space (leave one blank linespace) between them.
2. Like this.

Footnotes

When creating a report, references are made to other textbooks, articles, etc., and these have to be acknowledged. At the end of a quotation, or a reference, you create a **FOOTNOTE** by pressing (**Ctrl+F7**), **F** (**footnote**), **C** (**create**). This puts a footnote number in your document and also the same number in a footnote editing screen in which you enter the author, name of reference book or article, publisher and page number as well as any other information for the reference. When you have finished entering the footnote information, press **F7** to go back to your document.

You will see a footnote number, but no footnote unless you **REVEAL YOUR CODES**, at which time you will see the "NOTE" at the "FOOT" of the page—thus the name "FOOTNOTE."³ I have created this footnote as an example (you won't find the book).

The nice thing about the footnote feature is that if you change your report and the footnote reference ends up on a different page, the footnote follow and appears on the same page automatically. If you have several footnotes in your document, they will automatically increase in number. If you delete one of them, they will be automatically renumbered.

Tab/Indent Keys

BEWARE of the differences between the terminology **TAB** and **INDENT (F4)**. Textbooks often refer to "indenting" five spaces when in fact they want you to **TAB** in five spaces.

³Cucheran, Rhoda, FOOTNOTES ARE FUN, CEC Publishing Company, 1994, p.2000.

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Pressing **TAB** places your cursor at an advanced **Position** horizontally for the first line only, the balance of the lines wrap back to the original left margin.

Press **TAB** once at the beginning of each new paragraph to start the first line of text 5 spaces in from the left margin, and to leave the balance of the text at the default left and right margins.

Pressing **INDENT (F4)**, will place a new temporary left margin at the position indented to, and all lines will wrap to this new left margin until you press the **ENTER** key. Text will then again start at the original left margin.

Use the **INDENT (F4 and Shift F4)** key for quotations and enumerations.

Base Font

Word processing programs have different **FONTS** (type size and appearance) available. The default font is usually **10 pitch (pica)**, that is, it creates 10 letter spaces per horizontal inch, e.g.:

This is Courier 12 pitch.

This is 14 point.

ωυχ, χ, θη, Ϛ'Ϛς'Ϛυς'Ωζ (this is Greek, 20 point printed on LASERJET 4mp)

If you want to get more text on fewer pages, you may want to change your **BASE FONT** selection to **12 pitch (elite)**, that is, create 12 letter spaces per horizontal inch.

If you want to place emphasis on a word, phrase, sentence or paragraph, you may choose to use another style of font, or choose **italic** from the font appearance menu.

Title Page

Information on the title page should be displayed attractively,⁴ usually **centred on the page**. It should contain the **name of the report** or essay (in all uppercase—capital letters), the **name of the writer**, and the **date the report was typed**, with this information usually being double spaced, and a **HARD PAGE BREAK (CTRL+ENTER)** placed, at the end of the last line on the title page.

⁴*Ibid.*, p.276.

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BE CREATIVE!!! For effect, you may want to use the **BOLD** or **UNDERLINE** features; change the **FONT SIZE** to large, or use other special features such as **GRAPHICS** which are available to you through your word processing program.

INFORMATION PROCESSING

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Example:

(BUSINESS LETTER LETTERHEAD)

(Left and Right MARGINS are set at 15)

January 21, 1994

(DATE LINE is on Ln 9)

*(4-6 blank lines between
the DATE and INSIDE ADDRESS)*

Ms. Renata Jacot
5703 Dalton Drive N.W.
Calgary, Alberta
T3A 1C4

*(INSIDE ADDRESS includes
the name and the address
of the person the letter
is going to.)*

(one blank linespace)

Dear Ms. Jacot:

(SALUTATION)

(one blank linespace)

In response to your recent request, we are pleased to send you a copy of our article entitled "Exterior Painting, The Quick Home Remedy."

(BODY of LETTER)

(one blank linespace)

Our Group Merchandising Department prepared this article for consumers. It contains many helpful suggestions on choosing the right paint and tools for the job, preparing the surface to be painted, etc.

(one blank linespace)

Please do not hesitate to call your local Beaver store, or to write our Group Merchandising Department at the above address if you require additional information.

(one blank linespace)

Yours very truly,

(COMPLIMENTARY CLOSING)

*(4-5 blank linespaces for
handwritten signature)*

Dianne C. Warnick
Press Officer

*(SIGNATURE BLOCK
Name and title of person
sending the letter)*

(one blank linespace)

rc

(INITIALS of typist -- your initials)

(one blank linespace)

Enclosure

*(include an ENCLOSURE NOTATION
at the very end of the letter,
after the initials, if there is
reference within the text of the
letter indicating that there is an
enclosure -- an invoice, cheque,
catalogue, etc.)*

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TABLE Example:

SIDEWALK SALES SPECIALS		
<u>Store</u>	<u>Special</u>	<u>Price</u>
Woodwards	Braun Silencio Dryer	\$ 25.99
The Bay	Sony Walkman WM-F46	129.88
Shoppers Drug Mart	Magnetic Photo Album	4.77
Pet Fair	Cockatiels	59.80
Hakim Optical	Foster Grant sunglasses	12.00
Sears	Canon SolarCalc	24.66

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Field Review (1992–1993)

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Field Review (1992–1993) (continued)

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Field Review (1993–1994)

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Gordon Grams	Okotoks Junior High school
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